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DIESEL RAILWAY TRACTION SUPPLEMENT

The February issue of THE RAILWAY GAZETTE Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price 1s.

INDEX

An index to the eighty-first volume of THE RAILWAY GAZETTE covering the issues from July 7 to December 29, 1944, has been prepared, and is now available free of charge on application to the Publisher

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and facilities for such dispatch.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are: Mondays to Fridays 9.30 a.m. till 4.45 p.m.

The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Railways and Civil Aviation

IN the House of Commons on January 26 during a debate in Committee of Supply on civil aviation, Sir Stafford Cripps, Minister of Aircraft Production, suggested that it would not be very long before Lord Swinton, the new Minister of Civil Aviation, would be able to report progress. The Government was convinced that it was necessary to get on with civil aviation, and the pressure of competition from the other side of the Atlantic was too strong to allow this country to stand still. Lord Swinton was in touch with the railway and shipping companies to ascertain how their contributions could best be made to the progress of civil aviation. He did not regard any company or industry as having any vested interest in civil aviation, and it would be entirely a question of whether a real contribution could be made towards the efficiency of our civil aviation transport. Sir Stafford Cripps also said that the Minister of Civil Aviation would be perfectly at liberty, if he wished, to reorganise the British Overseas Airways Corporation in any way he thought fit. At the close of the debate Sir Stafford Cripps, in reply to a question, said that it had not been decided that all internal air transport should be handed over to private enterprise.

National Assets for Peacetime Trade

In the course of his statement to the shareholders of the Midland Bank Co. Ltd., the Chairman, Mr. Stanley Christopherson, was full of encouragement as to the restoration of a healthy flow of peacetime trade and enterprise. It was his view that the restoration of the physical capital of the nation could be accomplished in a comparatively short time, if the job were tackled wholeheartedly. The nation had risen to the demands of the war emergency with a degree of unity in purpose and in action never before attained, and he had yet to be told why the task of rebuilding Great Britain should provide less of an inspiration to united, enthusiastic effort than the task of defeating the assaults of unscrupulous enemies. The driving power of Great Britain's commercial leadership was to be found in the twin qualities of integrity and enterprise, expressed in a thousand ways throughout the ever-widening range of adventure in industry and trade. These things remained; the success attained in our war economy was in part the result of integrity in business, in public administration and in workmanship. In the differing circumstances of reconstruction these same qualities would be forthcoming, and as controls were relaxed and removed the field would be opened up for a resurgence of that spirit of personal enterprise which would win us back our position in international business relations and reassert our leadership in world affairs.

Capital Resources for Industry

The Chancellor of the Exchequer announced on January 23 that two large companies are to be created, to provide finance for industry. The larger will be known as the Finance Corporation for Industry Limited and will have a capital of £25 millions and borrowing powers of four times that amount. Thus its total resources will be £125 millions. The capital will be subscribed by consortiums of insurance companies, investment trust companies and the Bank of England, and it will provide temporary or longer-period finance for industrial businesses with a view to their quick rehabilitation and development in the national interest. The second company, the Industrial & Commercial Finance Corporation Limited, will have a capital of £15 millions and borrowing powers of twice that amount. In this case the capital will be subscribed by the clearing and Scottish banks with a token subscription by the Bank of England and its object will be to supply medium and long-term capital for small and medium-sized businesses in amounts of from approximately £5,000 to £200,000. Both companies will be managed entirely independently of the banks and their permanent staffs will be of men experienced in finance, commerce and industry. So that the policy of the larger company may conform to the general economic policy of the Government, the appropriate Government Departments will be kept informed of all major developments being considered.

Steam Raising in Industry

Of the total coal mined in this country, approximately 200 million tons a year, some 100 million tons is used for steam raising and 80 per cent. of this is consumed in industrial boilers. Boiler-operating efficiency is therefore of considerable importance not only to the nation, but the coal industry and to manufacturers of boilers and firing equipment, more especially as most of the coal used by industry is burned with an efficiency which is probably less than 60 per cent. The Lancashire boiler still dominates the industrial field because of its low capital cost, its

long life and its general suitability to the needs of British industry. It has been estimated that it represents probably the largest single type of consumer of coal in this country. With the launching of the national campaign for fuel economy it became clear that steps would have to be taken to obtain more information about the performance of Shell-type boilers and their firing equipment; a committee has been formed by the British Coal Utilisation Research Association, in co-operation with the Fuel Efficiency Committee, to investigate and report on methods of improving the performance of industrial boilers. It is under the Chairmanship of Mr. W. L. Boon; the Vice-Chairman is Dr. E. S. Grumell. The Committee has drawn up a comprehensive programme of research covering fuels, firing appliances and boilers, and a good deal of valuable information is likely to be accumulated which will have an important bearing on future design and performance.

Overseas Railway Traffics

Reports of droughs which may have a bad effect on crops and consequently on traffics have tended to lower the prices of stocks of British-owned railways in Argentina and ordinary issues have given way slightly in most instances. There have also been declines in some debenture and preference stocks. Traffics continue to be good. In the 28th and 29th weeks of the financial year the gross increases secured have been £58,830 on the Central Argentine, £47,666 on the Buenos Ayres Great Southern, £33,667 on the Buenos Ayres & Pacific, £15,121 on the Entre Ríos, £13,533 on the Buenos Ayres Western, and £10,993 on the Argentine North Eastern. Brazilian railways have opened the year well. In the first three weeks the Leopoldina has secured gross receipts of £135,799, an improvement of £15,483, and the Great Western, with an aggregate of £80,900, is £9,600 up for the same period. Antofagasta traffics, with a slight recovery in the 3rd week, are now £3,440 down.

	No. of week	Weekly traffics	Inc. or dec.	Aggregate traffic	Inc. or dec.
Buenos Ayres & Pacific*	29th	151,200	+	17,533	3,936,067
Buenos Ayres Great Southern*	29th	307,467	+	35,533	5,997,000
Buenos Ayres Western*	29th	77,800	+	6,667	2,162,333
Central Argentine*	29th	199,993	+	22,137	5,525,770
Canadian Pacific ...	3rd	1,092,400	-	17,800	2,973,000
* Pesos converted at 15 to £					

Canadian Pacific traffics continue to fall from the peak figures of the past year, and in the 2nd and 3rd weeks of 1945 have lost £75,800.

British Investments in Argentine Railways

The slight improvement which was shown in 1943 in the return on British investments in Argentina was not continued in 1944. According to statistics published by *The South American Journal* the total British investment in Argentine securities was £371,998,509. Interest amounting to £8,079,295 was raised equal to a yield of 2.1 per cent., which compares with 2.6 per cent. for the previous year. The amount of capital which received no interest was £191,826,555. The British participation in railways in the Argentine was £260,595,243, on which interest amounting to £3,959,393, or 1.5 per cent., was paid. This compares with 1.8 per cent. for the previous year. The amount of capital outstanding which was unremunerative was £162,817,135. The railway group accounts for the largest British investment in Argentina, but it also has the unenviable distinction of receiving the lowest return. Government bonds, for example, quoted in London total only £35,336,539, but the amount of interest paid on them is £1,342,532, or 3.7 per cent., and none of the capital in this category is in default. In the miscellaneous group of securities the total capital involved is £76,066,727 and the interest received is £2,777,370, or 3.6 per cent. In this case the capital which goes without interest is £29,009,420.

Assam Railways & Trading Company

Yet another Indian railway undertaking is on its way to being bought out by the State before its time. On this occasion it is the railway undertaking—the metre-gauge Dibrugarh-Sadiya Railway of 112 miles and a 32-mile colliery branch—of the Assam Railways & Trading Co. Ltd., which under its concessions were not due to pass into the hands of the Indian Government before December 31, 1951. These railways have been worked since April 1, 1942, as a war emergency measure as part of the Bengal & Assam State Railway. The directors have now received an offer from the Government of India to sell to it as from March 31 next the company's railway undertaking with the colliery extension and all stocks and stores for £1,770,000. At an extraordinary general meeting held on January 23, which is reported on another page, it was resolved to accept this offer and to negotiate terms with the debenture stockholders for the

repayment of their stock. Under this arrangement the company would go out of business as railway owners, retaining only for its own use the sidings to its collieries, mills, and forests, and its other trading activities. The pre-preference "A" shares and new 6 per cent. preference shares are to be paid off in full. The claims of the "A" stockholders for arrears of dividend since 1931 and for capital repayment have, however, presented difficulties for the solution of which precise proposals will have to be put forward at a subsequent meeting.

Railway Education

If the younger generation of to-day is to grow up favourably disposed towards the railways, and inclined to support the service they offer in face of the competition of the roads and the air, much depends on the efforts made by the railways themselves to attract the interest of youth. Realising this, the New York, New Haven & Hartford Railroad, after a number of conferences with educational authorities in New England, has inaugurated a comprehensive scheme for supplying factual railway information to public and elementary schools throughout the area served by its system. This matter includes three 16 m.m. sound films, a series of slide-films (lantern-slides reduced to film size for convenience in handling) on four selected railway transport subjects, specially designed coloured posters for display in classrooms, and a series of "Teachers' Guides" designed to assist teachers in making the most of the ciné-films and slide-films. The history of the New York, New Haven & Hartford is so closely bound up with that of the New England States that this railway propaganda in large measure provides also a history of New England. Care is taken in the pictorial and descriptive matter to go into the aspects of motive power, operation, and so on, which are always of deep interest to boys, so that their attention is captured at the outset. All the printed matter is distributed free, and the films are loaned without charge; the result has been a very considerable demand from schools all over New England.

Railway Refreshment Room Services

A recent criticism of the services provided by the railways in their station buffets and refreshment rooms in *World Review*, has brought us a letter from a railway buffet attendant which is published elsewhere in this issue. The withdrawal of restaurant cars has left the travelling public largely dependent on station buffets for sustenance, and the increasing demands on these establishments is coupled with food rationing regulations. It is not always appreciated that forms have to be completed showing all items sold, so that supplies may be replaced. This makes demands on the time of the girls which otherwise would be spent in expediting service. Many railway refreshment rooms have been modernised in recent years; others are due for reconstruction, but much has to be postponed because of the war. The impatience of travellers which is so often manifest at station buffets, and the implication which is sometimes voiced that the attendants are not as conscious of the need for speed in enabling connecting trains to be caught as they might be, no doubt arises in part from the fact that the travellers are less accustomed to working to limits of minutes than is the railway staff. Buffet attendants resent the suggestion that they are an underpaid section of the railway staff; their wages are double those received before the war.

Rolling Stock Age in the U.S.A.

Statistics published recently in the United States show what drastic steps will be necessary in that country after the war to overtake arrears in the construction of both passenger and freight rolling stock. Class 1 railways between them own 37,940 passenger train vehicles, but of these only 890, or 2.4 per cent. are from 1 to 5 years old. On the other hand, no fewer than 18,737 coaches, or 49.4 per cent. of the equipment, are over 25 years old. The Pullman Company has a better record than the railways, for only 31 per cent. of its stock is over 25 years of age. It is estimated that in the five years after the war, at least 3,000 new passenger coaches will be needed both to bring the average age of the stock down to a reasonable figure, and also to enable the railways to compete effectively with other forms of post-war transport. The wagon age position is better than that of the passenger stock; of a total of 1,756,634 railway-owned freight wagons, 243,301, or 13.9 per cent., are from 1 to 5 years old, and 31 per cent. are over 25 years old. With both freight and passenger stock in the U.S.A., therefore, roughly one-half is between 5 and 25 years old. The shortage of new freight vehicles is due mainly to the years of depression from 1931 onwards, when the building of freight stock was largely suspended; since the present war began, building has been resumed on a very extensive scale. Not so with passenger stock.

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however; since the United States entered the war, the construction of passenger vehicles has been entirely suspended.

Heat Transmission through Coach Roofs

In hot climates, the effect of the sun's rays in raising the internal temperature of railway rolling stock can be mitigated to some extent by the choice of paint used on the coach roofs. In a letter to the October issue of our American contemporary, the *Railway Mechanical Engineer*, Mr. L. J. Verburg gave details of some experiments made some years ago in the United States to determine the extent to which the sun influenced coach temperature between the hours of 11 a.m. and 2 p.m., when it is most directly overhead, and practically the whole effect of solar radiation is concentrated on the carriage roofs. With roofs painted black it was found that the transmission of heat from the sun into the coach body ranged from 12,000 to 25,000 B.T.U. per hr., with an average of 17,340 B.T.U. With colours other than black, however, this transmission might have been greatly reduced. The reflecting value of a gloss white paint, for example, is 88 per cent., light grey is 63 per cent., aluminium bronze 65 per cent., and dark grey 28 per cent.; of bare metals, aluminium has a reflecting value of 75 to 85 per cent., chromium of 60 to 75 per cent., and stainless steel of 55 to 65 per cent. Had the coach roofs in the test been painted with gloss white paint, it may be assumed that the transmission of heat would have been reduced from an average of 17,340 to 2,080 B.T.U. per hr.; but any advantage derived from such painting depends on the roofs being kept clean.

Swedish Electric Locomotive Design

Those engineers who braved the rigours of some very wintry weather—the thermometer in St. James's Park showed 24 deg. at the time—to hear Mr. H. G. McClean, Manager of the Crompton-West Traction Bureau, present his paper to the Institution of Locomotive Engineers on January 25, counted themselves well rewarded. Mr. McClean's subject was "The Mechanical Design of the Latest Class 'F' High-Speed Electric Locomotives of the Swedish State Railways"; he explained that he was to be regarded as the translator rather than the author of the paper, which was built on design and performance data of the latest additions to the numerous classes of electric locomotives in Sweden. The paper was timed, appropriately enough, for presentation during Mr. Graff-Baker's term of office as President; in a brief general survey, it also includes a reference to Mr. Burrell's "CC" electric locomotive on the Southern Railway. The paper is eminently readable and as will be seen from page 109 is consistently practical, and should provide a most useful summary of the vast amount of work which has gone into the development of these notable electric locomotives. Any engineers, therefore, who are associated with railways contemplating electrification schemes will find it particularly valuable. One of the most remarkable features of the ensuing discussion was the way in which steam locomotive engineers took part; this, no doubt, was largely due to the fact that the paper was written particularly from the mechanical, rather than the electrical, viewpoint, which naturally made it more attractive to them.

The Ice Age

If we ever feel guilty at switching on an electric fire in these days, we ease our conscience by thinking of a long-distance railway trip which a correspondent often makes. It being his misfortune to travel in a through portion at the end of a long train, he freezes most virtuously for five and a half hours by the timetable, plus a wartime bonus ranging from thirty to fifty minutes. Keeping the feet warm is the chief problem. An American fellow passenger recently suggested "running up and down the car," but desisted from the enterprise after a brief survey of the stoical British countenances with which he was surrounded, all of which would undoubtedly have frozen still harder with disapproval at so unorthodox a proceeding. Our correspondent has seen an elderly military gentleman cover his knees with a newspaper, a desperate expedient indeed, as this was one of the days on which his paper was reduced to four pages. He then relapsed into the sort of apathy which is one of the perils of exposure, and no doubt dreamed regrettably of a foxhole in the Ardennes. Our correspondent finds the only way to keep warm is to rub the frost off the windows and try to derive a glow of satisfaction from glimpses, as he passes through stations, of the familiar poster showing a table knife cutting a lump of coal in half to symbolise saving fuel. This, of course, would be ineffective if it was feared that the steam which might have been heating the passengers was being squandered on urging the train towards its destination at the advertised time, but experience teaches that any qualms of this sort can be rapidly dispelled by a glance at the terminus clock when they alight.

A Plan for the Coal Industry

THE position into which the coal-mining industry has fallen, more particularly since the assumption of control by the Government in June, 1942, is such as to arouse the deepest concern among the many basic British industries which depend on the coal resources of this country for their ultimate source of power. It has become increasingly clear over a number of years that all is not well within the industry and that so far endeavours which have been made to improve production have fallen short of what is required. Indeed, the attempts which have been made by the Government to achieve this end would seem to have had the opposite effect. For a great many years the industry has been bedevilled by political influences, which do not make for harmonious or efficient working. Moreover, they have caused to be rendered suspect proposals emanating from any of the interested parties.

In May last year Mr. Robert Foot, who previously had had no experience of the coal mining industry, was appointed Chairman of the Mining Association of Great Britain, the colliery owners' organisation. Since then he has visited a great number of coalfields, and he has now produced a report on the future of the industry, which has the merit of an objective approach. He has dealt with the problem within the confines of the business of coal getting, and has made only passing reference to coal utilisation, and has not endeavoured to lay down a national fuel policy. To some this may be disappointing, but many will welcome the fact that he has devoted his energies to the task which is of major importance at the present time, and without the successful accomplishment of which, indeed, the others cannot come to fruition. The report is a personal effort by Mr. Foot and the Mining Association, as such, is taking no collective action in the matter.

Mr. Foot rejects suggestions which have been made for the nationalisation of the industry, which he terms "a policy of despair." Nor does he believe that if, at the time when the control of production passed into the hands of the Government, the owners had been removed from the picture altogether by complete nationalisation, the position would have been in any way better today. On the contrary, he thinks it might well have been worse because there would have been removed a large number of persons with long experience of the industry who, although they have had no direct responsibility for production since 1942, have been devoting themselves in every possible way to helping to alleviate the difficulties of the situation. He has taken as his basis the belief that a way should be found which should enable the best undertakings in private enterprise to remain alive, and serve the country in the future as they have served it in the past. His main proposal is that there should be established a Central Control Board, consisting of members of the management, which would carry out his detailed recommendations. Wages, he considers, should stay high, but the only way in which high wages can be supported permanently is by increasing output and reducing the price. To accomplish the objective of continuous employment at a good rate of wages for the miners, provision of a return on capital which allows a proper margin for amortisation, depreciation, development and a reasonable profit, and at the same time sell the product to the consumer in full quantities at economic prices, there is required from the miner good and continuous work with a liberal approach to cost-reducing processes; from the management, enterprise, efficiency, and adaptability to all modern methods; and from the consumer, an understanding of the industry's problems, and sufficient patience to give the miner and owner their chance to make their mutual contributions.

As a basis for the industry, the report proposes that it should take a national conception of its responsibilities and that the coal in the country should be mined in accordance with the best mining practice with due regard to (a) adequate supplies at a proper price, (b) the conservation of our coal resources, (c) safety. Every support and encouragement should be given to the closer integration of the industry, and no existing pit should be closed or a new pit opened, unless in the first place all practicable arrangements had been made for the employment of the men elsewhere, and in the second, due consideration had been given to their housing, transport, and general welfare. Every support, encouragement, and financial backing should be given to research, conducted by the industry itself or by outside bodies, and it should be competent for the Central Board to provide any finance necessary for colliery undertakings, either for capital or revenue purposes. On the other hand, there should be no interference

with the autonomy, independence, and power of decision of any colliery undertaking in its own individual management and enterprise, or with the normal activities of district organisations.

The proposed Central Board would consist of a fulltime chairman, and no more than fifteen members, drawn from within the industry, and actively engaged in its work, who could be relied on to approach their responsibility in a statesmanlike way, and to think nationally, and not sectionally. Every colliery employing more than thirty persons underground would be bound irrevocably to accept as binding every decision made by the Board. Provision is also made for the establishment of District Boards and for the presentation by the Central Board to the Minister of Fuel & Power of an annual report, for the information of the Government, of Parliament, and of the general public, covering the operations of the industry and of the Board itself.

Every undertaking in the country, and every mine within an undertaking, it is urged, should be surveyed completely from a technical and financial point of view, and, on the basis of the report made, it should be decided whether the mine requires reconstruction, and whether or not it can provide the necessary finance. With or without the help of the industry, every undertaking will have to make itself efficient in every way, or be absorbed or disappear altogether. Mr. Foot declares that there is no doubt at all that the industry would be more efficiently administered if there were greater concentration of the units of production, but to spread compulsory amalgamation wholesale through the industry would do incalculable harm and would delay rather than expedite efficiency of the industry.

The creation of a national organisation for the export of coal is regarded as urgent. This organisation would enable the industry to speak with one voice in negotiations and discussions and in full collaboration with the exporters, would ensure that our export business was conducted and developed in such a way as would deserve the description of positive and progressive selling. Mr. Foot also suggests that there should be established a staff college for teaching the general principles of management, and particularly all the human aspects and problems that form such a vital element in managerial responsibilities.

The report has the undoubted merit of providing a wide basis of discussion and of bringing to the front major problems which have beset the industry for so long. Whether it will command itself in its entirety to the Government, coalowners, and miners seems doubtful, but there is an increasing realisation that the measures to be adopted to put the British coal industry back in a position in which it can serve the trade and industry of the country in the manner that is required at present, and will be equally important in the post-war years, must be drastic and far reaching if an effective solution is to be found of present problems.

Aid to Russia

THE present Russian sweep across eastern Europe on a gigantic scale has been made possible only by an accumulation over a long period of supplies and equipment commensurate with this great advance. The very considerable quota contributed by the Allies cannot be overlooked, and has assisted materially in this culminating effort of the Soviets from the Baltic to Hungary. For some time only two main supply routes to Russia were available, (a) *via* Murmansk and Archangel and (b) *via* the Cape of Good Hope, Arabian Sea, Persian Gulf, and either Persia alone or Iraq and Persia, to the Caspian Sea. The small map on page 111 may assist in an appreciation of the great length of the latter lines of communication. This length has been shortened successively by the freeing of the Mediterranean to Allied shipping, and now, in the last few days, by the opening of the Dardanelles to freight destined for Odessa or other Black Sea ports.

On page 93 of last week's issue we gave a few figures showing that, up to the end of 1944, some 5,000,000 tons of supplies had found their way to the Caspian *via* the Persian Gulf. When, at the end of 1941, the Allies decided jointly to send all possible aid to Russia, there was only one port in Persian territory available to receive this traffic, namely, Bandar Shahpur, though a considerable volume could be sent to Basra, and forwarded by rail or river steamer and rail to Khamiqin, on the Iraq-Persian frontier, for road transport thence to the Caspian. As described in the article beginning on page 111 in this issue, the most direct route from the Gulf to the Caspian, by the Trans-Persian Railway, was there and then placed under the wings of the British and Russian mili-

tary authorities to supervise the working of the line and assist in its management, maintenance, and operation. The British were responsible for the section south of Teheran and the Russians for all lines to the north of the capital, though the Royal Engineers repaired all engines and rolling stock for both zones. One of the first measures taken by the R.E.s. to increase the capacity of this route was the building of the Ahwaz-Khorramshahr railway, and the equipment of the new port of Khorramshahr on the Shatt-el-Arab, the channel by which the waters of both the Tigris and the Euphrates flow into the Persian Gulf. This line was opened for traffic in April, 1942, and greatly assisted the general flow of supplies from the outset. A year later, a third "Gulf" port was opened at Tanuma, also on the Shatt-el-Arab almost opposite Basra. This, too, is served by a new branch line opened at the same time. When the Americans took over the supervision of the southern part of the Persian Railways line of communications about that time, they were, therefore, well equipped with three port-railheads from which to work.

The many teething troubles inseparable from so great an increase in the capacity of a line totally unsuited for appreciably heavier traffic, were dealt with largely by the British Military Directorate during the 15 months it was in charge at Teheran. These are described in the article "British Work on Persian Railways, 1942," referred to above, Part I of which we publish this week. It is a testimony to persistently hard uphill work against ever-increasing difficulties, until the last month or two before the Americans assumed charge. Some of these handicaps are enumerated in Part I, others in Part II, to follow in a subsequent issue. We also hope to publish in the near future some notes on the sister lines of communication through Iraq, which were strengthened by the opening in December, 1942, of a new metre-gauge railway from Kut-el-Amara to Baquba (on the Baghdad-Khamiqin line) to avoid a difficult section of River Tigris navigation, and possible delays at Baghdad.

Meanwhile, it is well to realise that the rapid stepping up of the Trans-Persian traffic by the U.S.A. Forces from 1943 onwards, was made possible by the foundations laid and experience gained by the British Directorate and R.E. personnel. For instance, without the full-out test in the summer of 1942 of the maximum capacity of the Lauristan Mountain country for the supply of water to the railway by every known means, it is probable that the Americans would not have decided beforehand to work the line mainly with diesel traction from the moment they became responsible for its operation. Moreover, the Americans benefited in that Traffic Control was already installed, the Persian staff had been trained and had learnt some English, repairs of engines and stock had been put on a proper footing, and experience had shown what new stock was suitable and what was totally unsuitable for working over one of the most difficult railways in the world. The Royal Engineers, therefore, are to be congratulated on their 15-month achievement, even if they did not themselves enjoy the satisfaction of handling the greatly enhanced traffic subsequently moved by their successors.

Machine Tool Control Relaxed

TWO announcements of major importance directly to the British machine tool industry, and indirectly to a large range of engineering trades, were made at the end of last week. The first came from Washington, where the Federal Economic Administration made known the conclusion of negotiations for the sale to Great Britain of some 58,000 American machine tools, which were delivered to this country under Lend-Lease, for the sum of £6,300,000. There will now be no machine tools of American origin in British possession which have not been purchased for cash. The machine tools covered in this sale will continue to be used on war production in Great Britain as long as the need exists.

It is not always realised that Lend-Lease has provided a relatively small proportion of the total number of machine tools required by war plants in this country. Of the total machine tools which have been installed in British factories and shipyards during the war, 73 per cent. were manufactured in Great Britain. This is a striking tribute to the British machine tool industry, which suffered severely between the wars and strengthens its claim for consideration of its position after this war. Of the remainder, 14½ per cent. were purchased for cash in the United States and 12½ per cent. were provided by the

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United States under Lend-Lease. The purchase price agreed takes into account depreciation due to the intensive use of these tools under wartime conditions and represents an agreed estimate of the value which this equipment, taken as a whole, may have when it is no longer required for munitions production.

The transaction resulted from the recognition by both Governments of the special problem represented by machine tools, which they felt should be solved in advance of the end of hostilities. In the absence of the purchase agreement, all machine tools in Great Britain, delivered under Lend-Lease, would remain the property of the U.S. Government and users would be uncertain of their future position. As a result of the British Government possessing title to all Lend-Lease tools, these can now be dealt with under the arrangements for the disposal of government-owned machine tools which are no longer required for war production.

The second announcement was made in the House of Commons, where the Minister of Supply stated that in accordance with the Government's policy of introducing relaxation of control whenever circumstances permit, it had been decided to replace comprehensive control of machine tools by "selective control" applied to scarce types and to the most vital requirements. This step will facilitate the re-equipment of engineering industries and will reduce the administrative burdens on Government and industry.

As from February 1, 1945, it will no longer be necessary for an acquirer to obtain a purchase certificate before placing an order for any metal-working machine tool, or for any measuring instrument or measuring machine coming within the purview of the Machine Tool Control. The production and allocation of scarce types of machine tools will be planned by placing these types on a "nominated list," and orders for any of these machines will be accepted by suppliers only under the authority of "supply certificates." For all other new machines it will be sufficient for suppliers to advise the Control of the acceptance and completion of orders, and any orders of exceptional importance and urgency will be dealt with by means of "preferential delivery instructions."

Also as from February 1, orders for metal-working machine tools will not be subject to statutory price control. This will permit a reversion to the normal contract conditions applying to most types of engineering equipment. Price control, however, will continue to apply to all firm orders for home and export outstanding at January 31, 1945, and in view of the continuing importance of machine tools, the power to re-impose price control is being retained.

The abolition of licensing for used machine tools will give users greater freedom in the purchase of Government surplus machines not held in reserve for possible war uses. Although a large surplus is unlikely to emerge during the German war, planning for ultimate reconversion requires knowledge of the availability and price of all Government surplus tools. This surplus is now in the charge of the Machine Tool Control. As from February 1, sales from this pool will be on a new price basis, which has been fixed at a level favourable to purchasers so as to facilitate the re-equipment of industry. Sales on this new basis will be restricted during February to requirements sponsored by a Government Department. By March 1, however, Machine Tool Control will have complete price lists of all available Government surplus machines in at least five disposal centres outside London, so that intending purchasers in the provinces may investigate availability and prices without travelling to London. Long-term disposal plans are under consideration and there is to be full consultation with the trade interests concerned.

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Some Considerations on Transport by Pipeline

THE conveyance of petroleum and other liquids by pipeline, mainly in the United States, formed the subject of an editorial article entitled "Transport by Pipeline," in our March 17, 1944, issue. Besides describing the great additions being made as a wartime measure to the American pre-war system of 128,400 miles of pipe, it was then mentioned that in Great Britain a beginning had been made with the laying of pipelines for strategical reasons. We are now at liberty to explain the main features of this scheme, as Mr. Geoffrey Lloyd, M.P., Chairman of the Oil Control Board, has given an account of it in broad outline.

The first part of the grid was a line linking the South-West

oil ports with the London area. The survey of the route was begun on May 1, 1941, and the pipeline was opened six months later. The next section consisted of a pipeline from the North-West oil ports connecting with the first line and serving a number of storage depots which had been enlarged during the war. Facilities for pumping oil in either direction were provided, and consuming points in the Eastern Counties could thus rely on two sources of supply. This second section was brought into use at the end of May, 1942. In the summer of that year a spur line was run to the South Coast in expectation of the demands for petrol which would arise when the Continent was invaded.

The relief given to the railways by these three sections of pipeline made it possible for them to keep the R.A.F. supplied with aviation spirit but, as part of the plans for an intensive bombing campaign, the Oil Control Board decided to build a new series of pipelines to carry spirit from the West Coast to the airfields. This circuit was completed by the end of August, 1943. In the following autumn and winter further extensions were undertaken in the South and East of England, varying in length from 22 to 120 miles. The whole of the grid, covering more than 1,000 miles, was in action by the middle of March, 1944, and deals every day with 5,000,000 gallons of aviation spirit, petrol, paraffin, and vaporising oil for agriculture. Compared with the American figures quoted in our previous article, this quantity is insignificant, but the railway companies would have had great difficulty in handling it, because of the need for prompt and regular delivery, even if an adequate supply of tank wagons had been available.

The laying of a pipeline in open country is a simple operation. The total amount of steel required for the network was only 80,000 tons and its cost was about £7,000,000. The provision of the pipelines was undoubtedly the most economical way of securing a speedy turn-round for tank steamers and distributing their cargoes. The Petroleum Board, which is the wartime organisation of the country's oil industry, planned and supervised the construction of the grid. At the end of the war many of the storage depots built for emergency purposes and served by branch pipelines probably will be closed, but the oil companies will surely wish to retain the main sections of the grid—and possibly to extend them—as a convenient form of transport which may also be considerably cheaper than other means of conveyance. In a pre-war year the railways carried more than 3,000,000 tons of inflammable liquids and oil in owners' tank wagons at an average rate of over 10s. a ton. In addition, they have set aside portions of their dock estates for oil storage installations and have let many oil depot tenancies at their goods stations. A substantial revenue is thus at stake, and we have no doubt that the railway companies will watch developments carefully.

Presumably an Act of Parliament would have to be passed embodying the terms and conditions on which the grid would be transferred to a subsidiary undertaking formed by the oil companies interested in its operation. In that event we suggest that the pipeline system should be subject to Government regulation in respect of working methods and charges. An oil grid is a distinct form of transport and it is important that, if it remains in being after the war, the operating company should supply the Ministry of Transport with a copy of its annual accounts and full statistics of its transactions. The building of the oil grid has clearly added a fresh complication to the transport problems which will call for settlement as soon as the war with Germany is over.

On January 13 *The Times* suggested in a leader that, by indicating the course of new trunk roads, the oil grid would powerfully influence the distribution of industry. This statement seems to be somewhat unguarded. Presumably the pipelines have been laid across country on straight routes that may not be suitable for highways. So far as we are aware, roads have not been built alongside the cables of the electric grid, though it can supply power to factories at any point within its ambit. Despite the facilities which have been offered to manufacturers for more than ten years, the electric grid has done little so far to affect the location of industry, and, where it has failed, it is difficult to see how pipelines and roads are going to succeed. *The Times* also remarked that the airfields served by the oil grid are marked out as the future bases of long-distance civil aviation, but the number required in peacetime cannot be large and the present roads should suffice for all their land traffic. The perpetuation of the pipelines will appreciably reduce the number of heavy motor tank vehicles which would otherwise be required, and that in itself will weaken any case there may be for making new roads.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

L.N.E.R. Standard Corridor Coach

The Bay Hotel, Gourock,

Renfrew. January 22

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—As an earnest of post-war railway intentions the new L.N.E.R. corridor coach described in your January 19 issue is most heartening. Although I have not seen the coach, I venture to offer a few comments.

(1) If clearances will permit, a straight skirting will give slightly more room, and reduce the cost of manufacture by cutting out a bending operation on a large number of parts. The windows could then be lowered to pass luggage in and out of the compartments, a practice which has certain advantages.

(2) The class indication would be more visible if placed on the panels each side of the doors on a level with the centre of the windows, or, perhaps slightly higher than the centre. The present position (common to all British Railways except on certain Southern Railway vestibules) is a relic of stage coach days, when the body of the coach was viewed from the ground. From a crowded platform they are almost invisible.

(3) The separation of toilet and lavatory compartments would be advantageous.

(4) I trust the production bogies will have roller bearings, and be of the American equalising type, which I contend are the best riding bogies extant.

(5) As far as can be seen from the illustrations, the corridor side of the compartment has a narrow door dividing it into three parts, the L.M.S.R. arrangement of a double door occupying the whole length of the compartment, would enhance the view, which has already been catered for by the spacing of the windows on the corridor side of the coach.

I trust these remarks will not be taken as criticism of a very progressive design, but merely as a co-operative effort towards perfection.

Faithfully yours,
A. F. INGLEFIELD,
Member of Council
The British Railway Stockholders Union

Unknown People and their Parliament

London. January 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—Will you please let me reply to the points in Mr. Ashley Brown's letter of January 16 which can be treated as questions of fact.

1. The history of the old constituent railway companies proves that their proprietors owed a great deal to the protection given by Parliament against the intrusions of rival lines into their territory. When Parliament passed a Bill for a competitive railway, it did so in the public interest, and on occasion, because the railway in possession had not given satisfactory service. In some cases Parliament wisely rejected schemes put forward by certain railway companies which were not sound commercial proposals.

2. The regulatory Acts passed before the last war, to a great extent, were rendered necessary by the actions, or inaction, of the railways. The obligations placed on the companies which are now in question were:—

1. to provide reasonable facilities;
2. to arrange through rates;
3. to publish rates and charges;
4. to charge equally in like circumstances;
5. to refrain from giving undue preference; and
6. to keep accounts in prescribed form and render returns.

The railway companies agree that (1), (2) and (6) should be "quite properly maintained as before," to quote Mr. Ashley Brown's own words. Two representative bodies of traders object strongly to the withdrawal of (3) and will probably carry their point. (4) and (5) were at one time useful safeguards for traders.

Publications Received

Technology of the Heat Treatment of Steel. By C. W. Clarke, M.I.Mech.E., A.M.Inst.C.E., Mechanical Engineer, Indian State Railways. Technical Paper No. 314; Government of India, Railway Department, Delhi, Manager of Publications. 24 pp. 9½ in. x 6½ in., with folding plate. Price 9d.—This useful pamphlet presents in a

summarised form the simpler facts concerning steel heat treatments. After a brief introduction on the object of heat treatment and the structure of steel, sections deal with the methods adopted in quenching, hardening, tempering, toughening, annealing, forging, and case-hardening of steel, with the results obtained. There are further short sections on high-speed steels, molten-liquid baths, grain size, and the deter-

mination of the hardenability of any given steel, together with some notes on modern British practice.

Any foreman or other employee who is concerned with the application of heat treatments, and not acquainted with the technical reasons underlying the methods that he uses, would find this an admirably concise survey of the basic principles of the subject.

Yours faithfully,
HISTORICUS

Railway Refreshment Room Services

London. January 26

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—In a recent issue of *World Review* criticism was levelled at railway station buffets and attendants serving in them. In fact, a railway buffet attendant's day is trying and strenuous, especially so since the withdrawal of restaurant cars has made the public dependent on station buffets for refreshments.

The article in question stated that the "scene within a railway buffet is dismal and horrible." Leaving aside the exaggerated language, it is true that some of the premises are due for reconstruction, which, but for the war, doubtless would have been undertaken before this, but a number of railway refreshment rooms have been modernised in recent years. A brightly-lit buffet undoubtedly is attractive, but, to save fuel, lighting has been reduced to the minimum.

It was also suggested that the "tea is never ready." On the other hand, if the author of that article was served with tea made before he entered the room, he would probably protest that he did not want "stewed" tea. At some busy junction stations, nevertheless, tea is always ready, particularly for the arrival of a train from which 200 to 300 passengers may besiege the rooms.

It happens frequently that several busy trains follow each other at short intervals, and we then endeavour to serve everybody; in these circumstances, the counters may sometimes not be as clean as we should like, but they are dealt with immediately things quieten. It is most unfair to complain when we do our best to put first things first—that is, to provide passengers with something to eat and drink.

On the general matter of slowness of service it is not always appreciated that the Ministry of Food requires the girl serving to keep a record of every cup of tea, every bun, meat pie, sandwich or other item she sells, to enable the inevitable Government form to be filled up. Without the production of the form, no replacement of supplies is authorised. The attendant also often has a much clearer idea of the time available for catching a connection than the traveller, and frequently knows that the customer who declares that he "has only 2 min." actually has 10 min. before his train is due to leave.

We do not want excuses made for us on the grounds that our wages are poor—anyhow, my wage packet is double what it was before the war and I didn't have to ask for any increase.

The women serving in railway buffets have a particularly harassing and tiring job to perform, and 90 per cent. of the travelling public are appreciative of the manner in which their work is done and they are as resentful as myself of attacks of the type to which I have drawn attention.

Yours faithfully,
RAILWAY BUFFET ATTENDANT

February 2, 1945

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The Scrap Heap

Some railway unbelievers affirm that all railway companies' accounts are "cooked." We have observed that this is a mistake, for there is one company whose accounts are so manifestly raw, as to put to flight the idea of their being cooked.—*From the "Financial Digest" of January, 1883.*

One of the most extraordinary instances of expensive procrastination was mentioned by the Chairman of the Worcester & Hereford Railway at its first annual meeting on September 10, 1853. He said that the first application for a Bill was in 1845; that the line was admitted to be one of public utility, and yet the Bill had been before 10 Parliamentary Committees, and had only now been passed, at an expense in litigation from first to last of the huge sum of £250,000.

The statesman who should attempt to direct private people in what manner they ought to employ their capitals, would not only load himself with a most unnecessary attention, but assume an authority which could safely be trusted to no council and senate whatever, and which would nowhere be so dangerous as in the hands of a man who had folly and presumption enough to fancy himself fit to exercise it.—*Adam Smith, quoted in "The Road to Serfdom," by F. A. Hayek.*

WHAT THEY PAY

When we go into a pub, we should see written up: "Pint of beer 4½d, tax 7½d" Or, "A bottle of whisky 7s. 4½d. Sir John Anderson 18s. 4½d." In the same way we might have a label on each packet of cigarettes or tea. If there is to be any sense of responsibility in post-war policies it is essential that our people should know how much they are paying in taxation and what they are getting for their money.—*Captain L. D. Gammons, M.P., in "The Evening News."*

When the West Highland Railway was extended to Fort William in 1894, most of the old Hanoverian fort, with its associations with the Jacobite risings, was demolished to make room for the building of engine sheds and the laying out of a locomotive yard. The only block of buildings left standing was the Governor's House, and this was used to house the railway company's staff until 1935, when the local authority stepped in and declared the building unfit for human habitation.

tation. Just about the beginning of the present war the historic old structure was finally demolished, but not before the Governor's Room, panelled with Scotch pine, was removed and re-erected in the West Highland Museum in Cameron Square, Fort William.

Although, like many others, I regret the demolition of the last piece of the old fort, I am, nevertheless, pleased that this room, one of the most historic in Scotland, has been preserved, for here on December 31, 1691, MacLain, chief of the Macdonalds of Glencoe, interviewed Colonel Hill, Governor of the "Garrison of Inverlochy," in a belated effort to take the "Oath of Allegiance." Governor Hill informed MacLain that he was unable to administer the oath and that he must go to the magistrate at Inveraray. The result of this refusal was the tragedy of Glencoe. The time in which the oath might be taken expired next day and MacLain was too late.

The room is again painted its original shade of greenish-blue, known as "William and Mary Blue," the colour being determined by removing the many layers of paint and paper until the first coat of paint was revealed.—*Cyril R. Rouson, of Liverpool, in a "Letter to the Editor" in "Country Life."*

100 YEARS AGO

[From THE RAILWAY TIMES, Feb. 1, 1845]

THE ELECTRIC TELEGRAPH.—COOKE AND WHEATSTONE, PATENTEES.—The Electric Telegraph has been adopted on the following lines:—

BY ORDER OF THE LORDS OF THE ADMIRALTY, On the South-Western Railway as a GOVERNMENT TELEGRAPH, from the Admiralty, Whitehall, to Portsmouth, above 30 miles.

On the same line as a COMMERCIAL TELEGRAPH, from Nine Elms to the port of Southampton, 77 miles, with a branch to Gosport, 15 miles.

On the London and Blackwall Railway. On the Great Western Railway, from London to Slough, 18 miles; The Windsor Telegraph. Yarmouth and Norwich, a "Single Line" of railway—20 miles.

Part of the Oldham Branch Railway. Part of the Leeds and Manchester Railway.

Part of the Edinburgh and Glasgow Railway. The Dalkey (Atmospheric) Branch of the Dublin and Kingstown Railway.

In addition to the above the Telegraph is about to be laid down on several "single lines" of railway in different parts of England, Scotland, and Ireland.

Mr. Cooke is prepared to grant licences for the use or erection of the Telegraph for entire districts of country, where the boundaries are accurately defined.

Mr. Cooke will also undertake the laying of a Telegraph in any part of the United Kingdom for a fixed amount.

For further particulars apply to W. FOTHERGILL COOKE, Esq., Kidbrooke, Blackheath, or to ROBERT WILSON, Esq., Solicitor, 1, Coothall-buildings, London.

In Royal Octavo, 3s. 6d. cloth, with Four Engravings,

"TELEGRAPHIC RAILWAYS, OR THE SINGLE WAY," by William Fothergill Cooke, Esq., to be had at the Railway Times Office.



"The old man can't forget he's a District Controller"

RAIL NIGHT CLUBS

America's railways, realising they face stiff competition from domestic airlines after the war, are already advertising that post-war crack trains will have cinemas and night club cars.—*From "The Daily Express."*

After the suppression of the Boxer Rising in 1900, it was found necessary to issue a stamp for collecting a late letter fee, levied by the British Railway Administration. To meet the general convenience, a box was attached to the railway postal van, and it will interest Kipling lovers to know that the Chief Administrator at one time was "Stalky," known in real life as Major-General Dunsterville. These stamps were announced by the Director of Railways in a circular dated April 15, 1901. The stamps were officially in use for one month only, from April 20 to May 20, 1901. After May 20, however, some letters with these stamps on were allowed to pass, generally to and from philatelic members of the Forces; nevertheless they are rarely seen today, and have a philatelic rarity value.—*From the "London Philatelist Journal" of April, 1942.*

TAILPIECE

(The railway buffet attendant has one of the busiest of war jobs)

When you reach a wartime terminus as tired as can be,
And you cannot get a taxi and you're sagging at the knee,
And to save the situation you must find a cup of tea,
Then you're glad to meet the railway buffet lady.

Is the queue a very long one and its temper less than good?
Does equipment have to function far longer than it should?
She can solve these problems better than a thousand others could,
The indomitable railway buffet lady.
Her task is more than doubled now that dining cars don't run,
She has to keep a record and account for every bun.
She has to keep her head as well—which isn't always done
By critics of the railway buffet lady.

E. C.

Early railway ticket for combined excursion and dance, recently discovered as packing in a piano by Mr. A. J. Smith of the L.M.S.R. Motive Power Department, Birmingham

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Quadrupled Track

On December 20 the quadrupled tracks between Burdwan and Asansol, E.I.R., were brought into use. Major-General D. K. Stuart, General Officer Commanding, British & Indian troops, Bengal, and press representatives, travelling by special train, inspected the 52 miles of quadrupled track the construction of which has cost about Rs. 1,00,00,000.

A Runaway Engine

On December 18, when the 7 Down Bombay-Calcutta Mail was approaching Sihora Station near Jubbulpore, G.I.P.R., the driver, Mr. W. H. Ford, saw a light engine coming towards him. He immediately stopped the Mail, ran forward and boarded the light engine; and he succeeded in stopping it just as it struck the engine of the Mail. Damage was negligible and none of the passengers was injured; but Driver Ford was injured and had to be removed to hospital at Jubbulpore.

Diesel-Electric Shunters

The first two of ten diesel-electric shunting locomotives allotted to the N.W.R. have arrived; all ten are to be stationed at Karachi. These engines, manufactured by the General Electric Company, U.S.A., are of the B-B type, with driver's cab in the centre. All four axles have independent drives. The weight of each locomotive is 45 tons. Power is derived from two entirely separate diesel engines (8-cylinder V-type, normal rating 162 h.p., 4-stroke cycle, 1,000 r.p.m.), each driving its own generator. Tractive effort is 23,500 lb.

WESTERN AUSTRALIA

Swan View Tunnel Difficulties

To relieve a serious "bottle-neck" in the Western Australian railway system and overcome staff difficulties, the construction of a deviation to provide a new "down" main line between Swan View and Tunnel Junction has been commenced. Swan View Tunnel, located in the Darling Ranges on the main eastern railway, is 17 chains long. It was the cause of a one-day stoppage of work, on February 28, 1944, on the part of enginemen, on account of the suspension of a driver for refusing to take through one of the new Australian Standard Garratt locomotives. Included in the terms of settlement of the dispute was a provision that tunnel working with the new Garratt engines "up" grade should be discontinued until satisfactory tests of such locomotives had been made, and that no such tests would be made except on conditions to be agreed between the Commissioner of Railways and the duly-qualified representative of the employees concerned. Garratt engines have not worked through the tunnel since that time (see *The Railway Gazette* of July 7, 1944).

As a result of a previous incident, when a driver on a double-headed goods train was overcome by fumes in the tunnel, double-headed working through it was discontinued; also, the loads of all engines passing through the tunnel were reduced. All large passenger trains now are divided at Midland Junction and run in single-engine loads to Chidlow.

Deviation Work

The deviation will overcome the above disabilities by enabling double-headed working to be resumed over the Hills section and avoid the present payment of

penalty rate (1s. a trip) to enginemen working through the tunnel in the "down," or uphill, direction. The new route will be about one mile in length, situated on the northern side of the tunnel, and will comprise a rock cutting 36 ft. in depth, through which it is proposed to instal a safety fence to provide warning of rock slips. The grade will be 1 in 50 compensated for curvature. The estimated total cost is £100,000, and the work is expected to take approximately 12 months to complete; due to the limited manpower available.

SOUTH AFRICA

Commercial Problems

The General Manager of Railways & Harbours, Mr. C. M. Hoffe, recently summoned commercial and staff superintendents of all the nine systems to a special conference, in Johannesburg, in connection with commercial matters. This was the first meeting of its kind; similar conferences will be held from time to time.

Mr. Hoffe, in the course of his address, pointed out that the railways had at all stages to stand the tests applicable to ordinary business, that was, they had to be efficient and always alive to the interests of their customers. Unless the highest degree of efficiency was maintained public confidence would be undermined.

The railways were dependent on public goodwill now, and after the war that factor would become even more important. Efficiency in performance, the elimination of unnecessary delays, the prompt investigation of complaints, stern action to reduce thefts and petty pilfering, and cleanliness at stations were matters which should receive unremitting attention.

Mr. Hoffe added that he appreciated the very difficult circumstances in which every member of the staff had to work at present. He was grateful for the good work which had been done, and was satisfied that loyalty to the Administration was unequivocal as a general rule. He explained that the meeting had been called to enable superintendents to compare notes, to discuss their problems and to consider ways and means of improving railway services in general.

UNITED STATES

The Signalling of Crossovers

The Interstate Commerce Commission has communicated to all American railways an expression of its concern at the "inadequate safety precautions in the signalling of many crossover roads between parallel tracks." Several recent collisions have been caused by locomotives standing on crossovers in positions which have caused fouling of adjacent running roads, and yet have not interfered with the clear signal indications of the automatic block signalling applying to those tracks. Such inadequate signalling, in the I.C.C. view, shows a failure to conform to the "intent and purpose" of section 51 (b) of the Commission's prescribed safety standards.

Although the I.C.C. is stated, has no immediate intention of initiating prosecutions of railways for violations of this rule in the manner indicated, at a later date offending lines may be called on to justify their failure to take the stated safety precautions at crossovers. In reply to the I.C.C. communication, several railways stated that they were unaware that section 51 (b) bore the Commission's interpretation,

and that as yet they had evolved no satisfactory means of carrying out the instruction, but that investigations were in progress, both by individual railways and by the Association of American Railroads. They asked that the I.C.C. would delay the enforcement of its newly-announced ruling until investigations were complete.

Passenger Stock Requirements

It is hoped by the Long Island Railroad to obtain some additional double-deck passenger coaches to add to its stock of vehicles of this type. Five steel-framed double-deck electric motor coaches and five double-deck trailers are to be obtained as soon as sanction can be obtained from the War Production Board for the use of the necessary materials. As far back as September, 1941, an order was placed for these coaches with the Altoona shops of the Pennsylvania Railroad (of which the Long Island is a subsidiary), but was cancelled due to the materials not being available.

The Atchison, Topeka & Santa Fe Railway System is in the market for (when delivery can be obtained) 23 mail-baggage and express cars, 43 chair cars, two dormitory lounge cars, six dining cars, and six diners with lunch counters. All the 80 vehicles are to be of lightweight construction.

ARGENTINA

Institute of Transport

The annual general meeting of the Argentine & River Plate Centre of the Institute of Transport was held recently in Buenos Aires. The report for 1943-44 showed a membership of 205, of whom 55 were voluntarily on war service; during the year four members were killed in action. A full programme of meetings was carried out. In addition to the Chairman's address and a luncheon at which Sir Robert Burton Chadwick, Bt., was the chief guest, five papers were read and discussed. The examinations were held in Buenos Aires.

The officers and members of committee for 1944-45 are Messrs. P. Goddard (Chairman), C. Clarence Horton and A. T. Nickson (Vice-Chairman), A. C. Wren (Honorary Secretary), R. V. Cable (Honorary Treasurer), F. A. Bottomley, F. C. Egerton, A. Lowe, F. B. Lowry, R. Veitch, R. W. Walker and S. E. Walker.

BRAZIL

Proposed High-Speed Highway

The Public Highways Department of the State of São Paulo has completed plans up to Guaratinguetá for the building of a high-speed highway between the cities of São Paulo and Rio de Janeiro, which it has presented to the President of the Republic for approval. How far the projected road would serve as a competitor of the Central Railway would remain to be seen, but, so far as passengers are concerned, the journey-time between Rio de Janeiro and São Paulo probably would be several hours shorter than by the existing road or by the Central Railway.

The section of the new highway between São Paulo and Guaratinguetá would be 170 km. in length, or some 40 km. shorter than the existing road. Such towns as Jacareí, Capivara, Mogi das Cruzes, Taubaté and Pindamonhangaba would be by-passed to avoid curves. Maximum grades would not exceed 1 in 25. The new road would consist of two asphalt tracks, and be beautified with side and centre gardens similar to those on the Rio-Petrópolis road. It would have a width of 20 metres, or somewhat greater than that of the famous Anchieta Road.

Mechanical Design of the Latest Class "F" High-Speed Electric Locomotives, Swedish State Railways*—I

Reserve of power to meet future traffic developments

THE Swedish State Railways appointed, in March 1938, a Locomotive Committee to recommend the most desirable type of locomotive to meet a specification, features of which were:—

(a) To maintain a speed of 75 m.p.h. on the level with a trailing load of 590 tons (roughly 3,000 h.p.).

(b) Improved acceleration at higher speeds so that on routes with great variations of gradient and curve the locomotive could quickly attain its balancing speed and thereby ensure high schedules on difficult routes.

It was felt that the design of electric locomotives had stagnated, and it was decided that the performance of the new locomotive should not merely meet immediate requirements, but should include a margin for probable demands. It was therefore

One hour tractive effort, 9.5 tons. Maximum speed, 84 m.p.h. One-hour speed, 59 m.p.h. Maximum axle load, not to exceed 17 tons.

The locomotives were required to haul a trailing load of 590 tons not only on the level but also on grades up to 1 in 100. Furthermore, the trailing load was specified to be 470 tons on routes with long grades of 1 in 63. The latter condition dictated the maximum tractive effort, and the former determined the maximum h.p.

Particulars of the four basic types considered are given in Table I. The locomotive with four driving axles and side-rod drive was dismissed on the grounds that the stresses on the frames and girders become considerable, and the mechanical construction is difficult and full of uncer-

single-phase alternating current 16 $\frac{2}{3}$ cycles. The traction motor weight of 11 lb. per h.p. compares favourably with d.c. machines. The armature dia. is 30.7 in., and the peripheral speeds approach 19,700 and 14,800 ft. per min. on armature and commutator respectively. The armature current loading approaches 1,250 ampere conductors per inch of periphery. Motor-driven blowers (9.5 kW, 225 volts, 2,300 r.p.m.) supply separate air streams for ventilating both stators and rotors.

Finally, graduated control by increasing the number of notches has proved to be very desirable; but the 62 notches provided on locomotive No. 602 have been found excessive. Twenty-eight notches, as on No. 601, are quite sufficient. Comparative tests of high-voltage and low-voltage control have shown the former to be decisively superior, and high-voltage control will, therefore, be standardised in future.

The three experimental locomotives were equipped electrically by A.S.E.A., but with mechanical parts showing three variations designed and manufactured respectively by

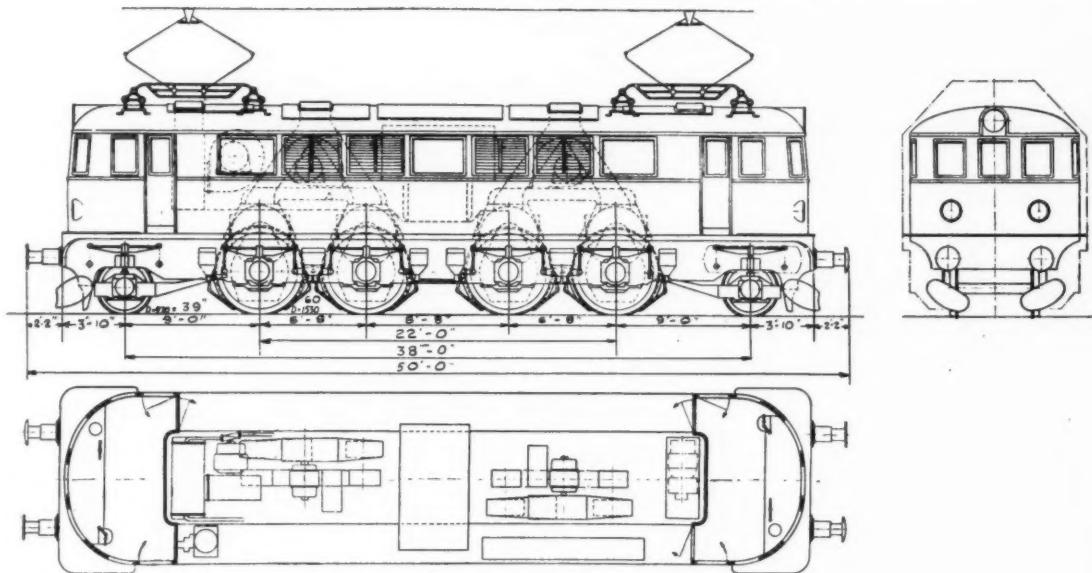


Fig. 1—Side view and plan giving main dimensions

decided that the locomotive should be of 3,500 h.p., and be suitable for a maximum speed on the level of 84 m.p.h. with a 590-ton train.

The Commission visited Germany and Switzerland in 1938, and reported in December of that year. Four basic designs were considered in detail. The majority recommended a 1-D-1 type of 3,500 h.p., but one dissident considered that an improvement on the then standard type D three-driving-axle side-rod locomotive with the hourly rating increased to 2,850 h.p. would be both satisfactory and cheaper. It was finally decided to build three experimental locomotives (Nos. 601, 602 and 603) each of the 1-D-1 type with individual axle drive. General proportions are given in Fig. 1, and the following were also specified:—

One-hour rating, 3,500 h.p.
Maximum tractive effort, 17 tons.

tainties. It was noteworthy that in discussing the alternative types with all the foreign experts met by the Commission, in view partly of the maximum speed required of 84 m.p.h., the recommendation from these foreign experts was unanimously in

Nydqvist & Holm, of Trollhättan; by Swedish State Railways workshops, at Falun; and by Motala. All possess flexible drive from motors mounted above the axles and rigidly attached to the main frames. Transfer of the motor driving power is effected by

No.	Locomotive	Axle arrangement	Adhesive weight (tons)	Total h.p.	Max. speed (m.p.h.)
1	Side-rod, type DK	... ...	50	$2 \times 1,000 = 2,000$...	63
2	Side-rod ...	... ...	50	$2 \times 1,425 = 2,850$...	75
3	Side-rod ...	... ...	67	$2 \times 1,425 = 2,850$...	75
4	Individual axle drive	... ...	67	$4 \times 875 = 3,500$...	84

favour of individual axle drives. As the locomotive must be reversible and the rolling stock is generally of standard type, there was no great technical merit in streamlining the locomotive, because the maximum proposed speeds do not exceed 84 m.p.h.

Though this paper is concerned with the mechanical design of the locomotives, a few particulars of the electrical equipment are given. The line voltage is 16,000 volts

twin gears to quills running in bearings attached to the motor housing; the drive from the quill to the axle is by spring coil type flexible drives. Alternative bogie constructions are incorporated. Locomotives Nos. 601 and 602 both have Krauss bogies, but with differences of detail; in No. 601 the guiding axle is restored axially by inclined planes, and on No. 602 springs are used for restoring. No. 603 has Bissel trucks. Whereas with

* Abstract of paper by H. G. McClean, M.I.Loco.E., read before the Institution of Locomotive Engineers on January 25

the Bissel the guiding and outer driving axles move axially independently, in the Krauss bogie axial movement of the guiding axle influences also the adjacent driving axle.

The arrangements of spring suspension also differ in the three locomotives. In Nos. 601 and 603 there are two symmetrical spring systems, each embracing two driving axles and one guiding axle; the so-called system of two-point suspension. In No. 602 the guiding axles are sprung individually and all the four driving axles are in one group; three-point suspension is obtained.

The transformer is located in the middle of the locomotive and the control gear in cubicles at the sides of the transformer. Auxiliary machines and the rest of the auxiliary and control apparatus are principally located at the ends of the motor compartment. The main plate frames are 25 mm. thick, suitably cross-braced; the whole structure is fabricated. The main locomotive construction is of the plate-frame type, appropriately welded.

The driving wheel dia., 60 in., was chosen after careful consideration. It would have been possible to use 53-in. wheels, which would have suited the motor gearing and allowed a smaller locomotive. However, the disadvantages of the smaller wheel are: greater wear on tyres; higher heat on braking; and higher bearing speeds. It was finally decided to retain the then existing wheel standard diameter of 60 in.

The distance between the two centre driving axles is determined by the space required for the transformer. With a design involving one motor per axle the

polar moment of inertia of the locomotive is high; in fact 40 per cent. greater than on the previous class "D" locomotives. It was therefore desirable to ensure good riding on curves, to increase the distance between the guiding axles and end driving axles; this dimension was accordingly increased from 6 ft. 6 in. to 9 ft.

Although the Bissel axle had been used with satisfaction on the class "D" locomotives, the question arose as to whether

Bissel would be satisfactory on the new class "F" locomotive at 84 m.p.h. Accordingly two of the three experimental locomotives were fitted with Krauss bogies, although this involved an increase in total weight.

As compensation for this, the Krauss bogie ensures that both the guiding axle and the leading axle share the lateral forces on entry into curves. On locomotives Nos. 601 and 602 the Krauss bogies differ in detail. German experiments with the 1-D-1 type were studied, involving various ways of fixing the rear driving axle, etc. Previous experience in Sweden confirmed that for good running, the rear driving axle should be fixed, so Bissels and damped bogies were adopted.

Alternative arrangements of two- and three-point suspension are embodied in the experimental locomotives. In locomotive No. 602 the guiding axles are sprung individually; all four driving axles are in one group, and they have, therefore, three-point suspension. On Nos. 601 and 603 there are two symmetrical spring systems, each embracing two driving axles and one guiding axle, the so-called two-point suspension.

The weight transference effect is proportional to the tractive effort exerted and partly depends on the springing arrangement and the variations in the maximum adhesion weight. If the springing is in two symmetrical systems each embracing one guiding axle and two driving axles, then with 17 tons total tractive effort there is 16 tons left on the leading driver and 18 tons on the rear driver, and the total effective adhesion weight is $4 \times 16 = 64$ tons.

In normal cases the effective adhesion weight with two-point suspension decreases in direct proportion to the tractive effort, i.e. in the present case by 6 or 7 per cent. at the maximum tractive effort. With three-point suspension the total adhesion weight is constant, but the disadvantage is that the weight on each axle must be accurately maintained. The springs must be accurate and a satisfactory solution may involve the use of different springs. There is also the disadvantage that the adhesion weight changes with unevenness in the track. With two-point suspension, on the other hand, weight distribution remains unchanged, irrespective of variations in spring tension or irregularities in the track.

In general high-speed track is maintained in good condition. If three-point suspension is adopted it is necessary to go to the expense of careful adjustment of the springs and frequent verification that weight distribution is being maintained. On Continental 1-D-1, or similar locomotives, three-point suspension has been applied in at least 400 instances, whereas two-point suspension is more unusual.

(To be continued)

Railcar Modifications on Swiss Federal Railways

Some "Red Arrow" cars have been modified to enable them to meet altered traffic demands

THE "Red Arrow" electric semi-streamline express railcars, class "Re 2/4," placed in service on the Swiss Federal Railways between 1935 and 1938, were constructed in accordance with the views then prevailing concerning the future development of rail traffic and the best ways of meeting the growing road competition. It was thought that service of single high-speed cars would be especially helpful on some routes in attracting traffic to the railways; and the "Red Arrow" cars accordingly were built without means of coupling to ordinary rolling stock. The body and framing were kept as light as possible.

The traffic developed, however, in a way not expected, and the cars often were overcrowded, so much so that they had to be taken off. They found another field of usefulness in catering for sight-seeing and tourist parties, with which they proved exceptionally popular. The suspension of this kind of traffic during the war and the increased services of ordinary trains which it was found necessary to put on made it practically impossible to use the railcars, at a time when a deficiency in locomotives and motor coaches was making itself acutely felt. It proved possible to run a few cars on lines of light traffic, but even then they had to be replaced by locomotive-drawn trains at weekends.

A disadvantage of the cars as regular-service vehicles was found to lie in their limited capacity for dealing with luggage, bicycles and express parcels

traffic. The present train services on many routes do not permit the separation of this traffic; and it is necessary at times to attach goods wagons for the quick conveyance of milk and perishables.

The question of whether these cars could be modified to enable them to haul other vehicles accordingly was considered. The problem was a difficult one as conflicting claims had to be reconciled and it was essential to avoid making more alterations to the cars than were necessary, yet to avoid doing anything which would subject them to excessive stresses or overloads.

Any extensive modifications, it was considered, would involve expenditure which it would be preferable to devote to obtaining new rolling stock. It was decided finally to convert two cars as an experiment, and the details have been given in the *Bulletin* of the Federal Railways by Herr E. Meyer, Deputy Superintendent of Workshops at Berne.

The underframe and ends of each body were reinforced, and ordinary buffers added, with a simple draw-hook without screw gear. Much care is required in shunting the vehicles, however, as only the minimum amount of strengthening has been done. There is no means of passing from the car to other vehicles during motion, and this presents an operating disadvantage, as the system of ticket inspection and control in Switzerland makes such a facility almost essential. A major alteration was the fitting of the automatic form of air brake and hose con-

nections; the moderate type was not installed, as it is not intended to run these cars with trailers on mountain sections.

Special arrangements had to be made on account of the form of electrical equipment already fitted, to enable an electrical heating circuit to be provided through a plug connection to any passenger vehicle hauled. The voltage of this circuit is 800. The alterations increased the weight of the car by 2,200 kg. to 34.8 tonnes (about 34 tons 5 cwt.).

After careful trials, the maximum trailing load has been limited to 30 tonnes on gradients up to 1 in 84. For gradients above that figure and up to 1 in 55 permission must be obtained for a trailer to be attached, and no trailer may be run anywhere steeper. The maximum speed of a car running alone is 125 km.p.h. (78 m.p.h.), and with a trailer, 100 km.p.h. (62 m.p.h.). It is intended to place the two modified cars in service on some lines of comparatively light traffic now being electrified.

As the appearance of the cars when hauling some of the old ordinary stock is not particularly pleasing it is proposed to build some lightweight bogie vehicles as special trailers, so that the "Red Arrow" trains may have a more attractive appearance and provide really comfortable transport.

Special instructions have been issued to impress on the staff the necessity for ensuring that the cars are never loaded beyond the permissible limits, lest the equipment be seriously damaged.

The design of the cars was described in *The Railway Gazette, Electric Railway Traction Supplement*, of July 27, 1934, and an illustration of one of them appeared in the *Electric Railway Traction Supplement* to the issue of March 8, 1935.

British Work on Persian Railways, 1942—Part I

The achievements and difficulties of the R.Es. during the 15 months in which they laid the foundation for effective aid to Russia

A DESCRIPTION of the Trans-Persian and other Persian railways completed, building, and projected at that time was published under the heading "The Railways of Persia" in *The Railway Gazette* of October 3, 1941. It was a preliminary description based on information obtained during construction, and consequently certain station names, details of grading, and other references have subsequently been altered, as may be seen from the gradient profiles and other details accompanying this article. Moreover, the branch towards Tabriz has since been completed as far as Mianeh, and the projected branch to the Shatt-el-Arab port of Khorramshahr was built by the Royal Engineers in 1942, together with a further branch to the third Gulf port of Tanuma on the same river and almost opposite to Basra. Rolling stock and other equipment was also augmented during 1941.

From the moment that Lord Beaverbrook visited Moscow in that year and, on behalf of the United Kingdom Government, promised Russia all possible material aid, the Persian railways assumed considerable importance as one of the routes by which that aid could be sent from the Persian Gulf to the Soviets

via the Caspian Sea. They were, however, staffed and equipped only for very light traffic—carried by not more than one freight train a day, on an average—and the adaptation for carrying heavy war traffic of the 800-mile main line, with its long mountain gradients, presented a Herculean task quite beyond the capabilities of the peacetime administration.

It was, therefore, jointly agreed that the Allies should assist the management with advisory staff and equipment, and that the British Army should undertake to do so in the operation of the section between the Gulf ports and Teheran and in the shop repairs of the rolling stock of the whole system. The Russians undertook responsibility for operating the Teheran-Caspian section and the two northern branches towards Tabriz and Meshed.

British Transportation Directorate

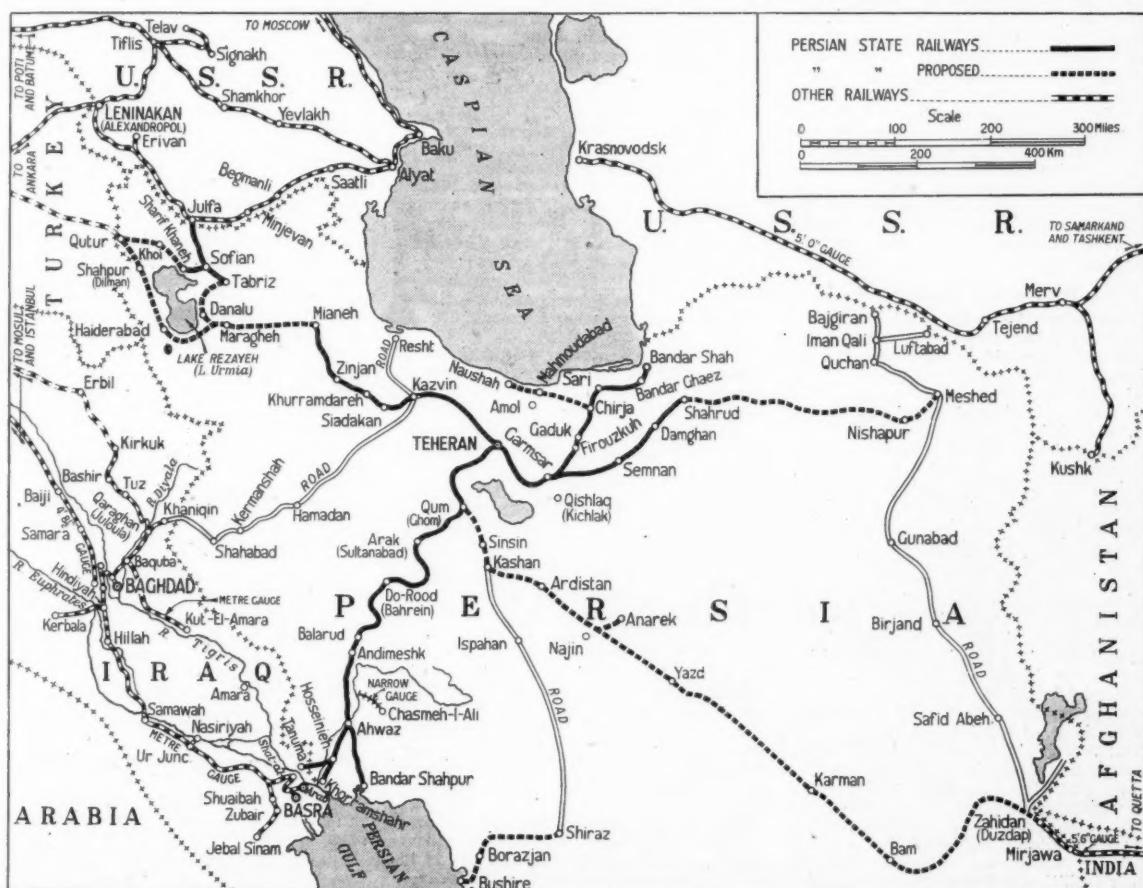
By the end of 1941, therefore, a British Transportation Directorate had been established, under Brigadier Sir Godfrey Rhodes, with headquarters at Teheran. Its officers were seconded in an advisory capacity to assist the Persian administration in building up an organisation suitable for the heavy traffic expected. Royal



Supply routes to Russia

(See page 104)

Engineer "other ranks" were also employed to double-bank the Persian railway staff, with the object of training them to a much higher standard of efficiency. Although these Railway Troops were numerically inadequate and—because no more could be spared from the British



Revised map of the railways of Persia and adjacent territories, showing also the principal road links used in sending supplies to Russia

Forces—were replaced by Americans early in 1943, they succeeded in raising the net tonnage handled in a northward direction from about 18,000 to 143,000 a quarter well within these 15 months. A net northwards tonnage of under 1,600 a day may not sound great, but, as outlined below, the R.E.s. were faced with all but insuperable difficulties, and did extremely well in achieving this figure.

The force under Brigadier Rhodes consisted of three Railway Operating Companies, one Railway Construction Company, one Railway Transportation Stores Company, one Railway Workshop Company, and one Mobile Railway Workshop Company, and had a total strength of about 2,500 men. The Operating Companies each worked one section of the British-controlled system between the Gulf ports and Teheran, including all locomotive and rolling stock maintenance and shed repairs. The Construction Company built the 75-mile line from Ahwaz to the new port of Khorramshahr, together with sidings and port facilities, as well as the 30-mile branch taking off from that line and running to Tanuma. In addition, it constructed many sidings and spurs all over the British area and was also responsible for line maintenance. The Stores Company was stationed at Ahwaz, and the Workshop Company was primarily in charge of the central shops at Teheran, where were carried out all the heavier repairs for both British and Russian-controlled sections. It also received at the Gulf ports and erected at Ahwaz all new locomotives, breakdown cranes, etc., and handed them over to Traffic. The Mobile Workshop Company was a small unit living and working on a train, and was liable to be sent anywhere in the area to effect light repairs as required. Attached to the Directorate was also an Indian Wagon Erection Company, stationed at Ahwaz, which erected several thousands of wagons of all types received from America. In the same shop a small R.E. organisation put together nearly 1,000 four-wheel wagons from the United Kingdom.

The Difficulties Encountered

These were the tasks confronting the R.E. troops, but they were complicated by the following widely differing but most serious handicaps:—

(I) Only the administrative officers in Persia were experienced in railway operation, and their training in various European countries had been academic rather than practical. Though they were, individually, competent and clever, they were not capable, collectively, of producing a really good and simple organisation to insure the satisfactory working of a railway beset with such topographical and climatic difficulties, especially in view of the ignorance of their subordinates.

(II) A second great difficulty was that of language. Initially this subordinate staff understood no English and the British other ranks knew no Persian. Special measures, described below, had to be taken to insure safe line-clear working and the issue of caution orders.

(III) A third handicap was that, although there were in the country ample engines and stock for light traffic working, an incredible percentage of them was out of order and laid up awaiting repairs, or was unsuitably equipped for working on long continuous mountain grades. Repair facilities and spare parts were also inadequate, particularly the latter.

(IV) The British rank and file were, moreover, very young and had had vir-

tually no practical experience of the class of work required in such difficult surroundings. To a large extent, therefore, they had to be trained in Persia. Numerically, also, this staff was inadequate even to supervise the Persians, let alone to operate 650 miles of extremely difficult line.

(V) Because of the arid nature of the country traversed, water supplies for steam locomotive requirements were, are, and must remain, totally inadequate—except during the spring and early summer of each year—for working more than eight double-headed trains daily between Ahwaz and Teheran. Everything possible was done to improve existing sources of supply, make fresh borings, and construct reservoirs, but this was the final verdict, which resulted in the Americans bringing 65 1,000-h.p. diesel-electric locomotives with them to Persia, when they took over from the British.

(VI) The intense heat, as well as causing constant trouble with injectors and being responsible for excessive slipping due to oil leakage on to the track, became almost unbearable for the European staff on the lower sections of line.

(VII) The new locomotives and wagons supplied from the U.K. and U.S.A. were, in many respects, completely unsuited to the abnormal requirements of Persia, especially in regard to brake equipment, superheaters, sanding and draw gear, and chilled cast-steel wheels.

With a view to an immediate stepping up of the capacity of the Trans-Persian line, it was decided not to increase the number of trains so much as to increase the carrying-capacity of each train by resort to double-heading and, on the steepest grades, to banking in addition. This decision was prompted by the fact that this single line was divided into long sections between stations, and the extremely heavy grading and sharp curvature made (a) the running time over each section abnormally long, and (b) the provision of intermediate stations or sidings very difficult. Though double-heading was not previously unknown in Persia, few of the Persian train crews were experienced in this form of working. It was, therefore, considered advisable to have one British and one Persian engine crew on each train.

Banking was at first widely used, but a serious accident, resulting from a faultily-driven pusher engine, made the Directorate reduce banking to a minimum, confining it to the Andimeshk-Balarud and Meshkabad-Nangerd sections. It was on these sections, and on the former particularly, that the greatest trouble was experienced because of excessive slipping. Consequently, a standard brake-van was marshalled in front of the leading engine of the heavier trains and manned as a "sand-van," to supplement the sanding gear on the locomotives, probably an unique practice.

Wagon Brake Deficiencies

The efficient braking of freight trains was one of the most serious problems on the long and steep grades. Before the war, the Persian Railways possessed about 2,000 wagons of all types, of which only 600 were fitted with both air and hand brakes, and a further 300 had hand brakes only. Moreover, the first 800 additional wagons received from abroad were equipped only with one-side hand-lever brakes. As the grades throughout the 400 odd miles from Andimeshk to Teheran necessitated running a minimum of 25 per cent. braked vehicles on each train, and the section north of Teheran demanded

at least 45 per cent., and in view of the fact that in each case 50 per cent. of the total braked vehicles had to be power-braked under the control of the driver, the solution of the problem was far from easy. Not only was much additional marshalling imperative, but very careful loading of wagons at the ports was also essential to insure that the necessary braked vehicles were available to "carry" unbraked wagons over both sections. As in other cases, this difficulty was surmounted by the co-operation of all concerned.

It was hoped that, with the arrival of a large number of power-braked wagons from the U.S.A., much of this difficulty would disappear, but, unfortunately, they had a very weak design of coupling and their brake gear was far from satisfactory, being less powerful than that on any of the other vehicles already in service. It also had a very slow release, with consequent serious risk of train-partings due to "snatch" when these wagons were marshalled among those of other types. In fact, so serious did an epidemic of train-partings become, that a regulation had to be issued forbidding the marshalling of more than 25 per cent. of these American wagons in any one train, and laying down that they must be separated by other types, the couplings of which must be used and not those of the U.S. vehicles.

The language difficulty was not so marked at headquarters, where interpreters were readily available, as at out-stations. It was overcome to some extent by British train crews receiving instructions through the Traffic Control offices, one of which was established on each Operating Division; the Traffic Control system was one of the first innovations made by the British Transportation Directorate after its arrival in Persia.

Language Difficulty Overcome

This expedient was not always possible, however, without inordinate delay, particularly at wayside stations, where the greatest difficulty arose in connection with the line-clear tickets issued to British crews by Persian stationmasters, written in Persian. This was particularly the case when any endorsement, such as the notification of a speed restriction, was entered on the ticket. To obviate this difficulty, rubber stamps bearing English identification initials, to show the section through which the train was authorised to proceed, were issued to all stations. In addition, four different-coloured cards also formed part of the equipment of each station, printed in both English and Persian. These were:—

White card :—"There are no restrictions and you may proceed through the section normally to the next station."

Pink card :—"You are receiving a caution order instructing you to bring your train to a stand at the point indicated" (written on the caution order).

Yellow card :—"You will cross a train at the next station and you are receiving a caution order to this effect."

Orange card :—"You are receiving a caution order advising you that you must reduce speed as shown between the points indicated" (written on the caution order).

When issuing a line-clear ticket or caution order to a driver, the stationmaster at the same time exhibited to him the appropriate card, thus indicating exactly what type of order the driver was receiving. The driver, when signing for the order, noted on the stationmaster's copy what coloured card he had been shown, thus protecting himself in the event of mishap. It will be observed that



The Persian Gulf port of Khorramshahr, one of the railheads of the "Persian Corridor" for supplies to Russia. In the upper right hand of the picture may be seen a motor lorry convoy leaving the assembly plant en route to Russia

in the case of the pink and orange cards it was necessary for the stationmaster to write in the kilometre at which a train was to stop, or the kilometres between which it was to run at reduced speed, but it was found that there was no difficulty in this respect as the British crews very quickly learned to read Persian numerals. This system functioned exceptionally well.

These, then, were some of the more general difficulties faced and overcome by the R.Es. working in more than one branch of the Directorate. Equally acute were those of the locomotive running staff, and in connection with the locomotive and wagon stock, which must, however, be dealt with after the various types of stock have been described.

Traffic Control System

Meanwhile, as mention has already been made of early installation of the Traffic Control, this system may now be described conveniently. Any such control was entirely new to the railways in Persia, so that it was a matter of starting from scratch. The language difficulty made it imperative for half the Train Controllers to be Persians, and suitable men had to be selected from the existing staff for training in their new duties. The Control Office on each Division was under a British N.C.O., as Traffic Operator, with both British and Persian Train Controllers under him. At first all decisions were made and all traffic regulation was done entirely by British staff, the Persian controllers acting as interpreters between the control and line staffs. Train graphs were compiled by the Traffic Operator from information supplied to him by the Persian Train Controller. Gradually, however, the Persian staff was trained in the system and was able to shoulder more responsibility and compile the graphs, eventually becoming fairly

reliable as Train Controllers, except that they were, even then, seldom willing to accept responsibility themselves. The Traffic Operator in charge of each office had, therefore, to remain a British other rank, and one British Train Controller was also retained on each shift.

All this may sound fairly simple and straightforward, but actually the establishment of any control whatever was at first most difficult, because of the inadequate and inefficient telephone communications throughout the railway. There was only one common circuit over each division serving all stations, and a trunk circuit serving certain principal stations. What was worse, however, was a complete lack of telephone discipline among

the staff, and this fault could not be corrected, as it was found almost impossible to educate Persians to listen on a line before ringing, and not to interrupt in a much louder voice any conversation that might be in progress already. Consequently confusion reigned, practically putting the line out of action. In the early days this largely nullified the value of control, especially as the station-to-station line had to be used for control as well as for line-clear working, a definite menace to safe operation of the increasing traffic.

Selective ringing control sets at each control office were the obvious remedy, but, though these were ordered at once, they were received and installed only

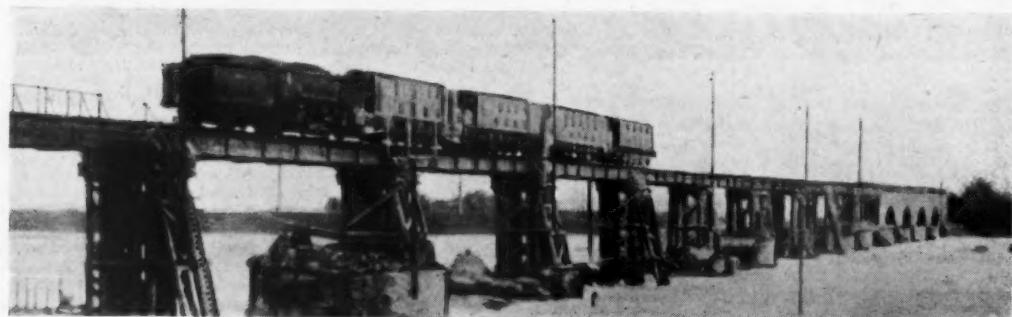
(Continued on page 121)



W.D. rolling stock (including L.M.S.R. type locomotives) about to leave the marshalling yards at Ahwaz with British and U.S.A. supplies for Russia. This picture was radioed from Cairo in May, 1942



The railway bridge across the River Loire at Orleans, which carries the Paris-Tours and Paris-Toulouse main lines, after ten of its arches had been destroyed by Allied bombing last May



Temporary structure across the River Loire at Orleans over which traffic was restored on November 21



Special L.N.E.R. mail train which leaves Nottingham London Road Low Level Station nightly for a Channel port with the heavy British mail from the Army Post Office, Nottingham, for the British Liberation Armies

RAILWAY NEWS SECTION

PERSONAL

At the meeting of the Irish Railway Clearing House held on January 25, Mr. A. P. Reynolds (Chairman of the Irish Transport Company) was re-elected Chairman of the Irish Railway Clearing House Committee for 1945.

SOUTHERN RAILWAY APPOINTMENT

The Southern Railway has appointed Mr. Charles M. Cock as Deputy Chief Electrical Engineer. Mr. Cock holds the position of Divisional Transportation (Operating) Superintendent in charge of the Bombay Division of the Great Indian Peninsula Railway. He will take up his position with the Southern Railway after his return from India, to which country he returned after a brief visit to England.

Mr. O. E. Kinsman, Assistant Divisional Superintendent of Operation, Derby, L.M.S.R., has been appointed, for the current year, President of the Association of Railway Companies' Locomotive Running Superintendents.

Mr. J. H. Becher, Deputy General Manager, and Mr. W. Carruthers, Works Manager, of the Barsi Light Railway, are retiring shortly. Mr. Becher is to be succeeded as Deputy General Manager by Mr. L. E. Dowling, at present Divisional Engineer, Jubbulpore, Great Indian Peninsula Railway.

The late Sir H. L. Watkin Williams-Wynn, who was a Director of the Great Western Railway Company from 1885 until 1943, left unsettled estate already valued at £386,150 (as recorded in our October 6, 1944, issue) and settled land now valued at £326,060, making a total of £712,210.

Mr. Ray F. Clark has been appointed General Freight Agent, Chicago, Canadian National Railways.

Dr. Fritz Wanner has been appointed Secretary-General of the Swiss Federal Railways, in succession to the late M. Francis Torche.

Mr. W. T. James has been appointed a Director of the Sunderland District Omnibus Co. Ltd., an L.N.E.R. and B.E.T. associate.

L.N.E.R. APPOINTMENTS

The L.N.E.R. announces the following appointments:—

Mr. C. Corps, Dock Superintendent, Eastern Docks, Hull, to be Assistant District Superintendent, Hull.

Mr. G. B. Milsom, Dock Superintendent, Western Docks, Hull, to be Dock Superintendent, Eastern Docks, Hull.

Mr. A. V. Upton, Assistant Dock Superintendent, Eastern Docks, Hull, to be Dock Superintendent, Western Docks, Hull.

Mr. H. R. Humphreys, who is a Director of Cammell Laird & Co. Ltd., has been appointed a Director of the English Steel Corporation Limited and of Firth-Vickers Stainless Steels Limited.

Mr. S. M. Basrur, Deputy Chief Traffic Manager, Great Indian Peninsula Railway, who, as recorded in our November 10 issue, has been appointed Chief Traffic Manager, was born in 1887, and educated at the Wilson College, Bombay, of which he became a Fellow on graduation. He joined the G.I.P.R. as a traffic probationer in 1917, and was the first Indian to be so recruited. After having served in various important posts, he was appointed a Deputy General Manager in

Mr. W. Dalziel, Superintendent for Scotland of Thos. Cook & Son Ltd., is retiring at the end of February after over 52 years' service. General control of the company's offices in Scotland will be exercised by Mr. J. Manson (formerly in charge of the St. Vincent Street office in Glasgow), who has been appointed Area Controller of Northern Branches. Mr. John Bain, now Chief Clerk, will become Branch Manager of the office at 83, Buchanan Street, Glasgow.

Sir Murray Morrison, Deputy Chairman & Managing Director of the British Aluminium Co. Ltd., is retiring from the latter office as from March 30 next, but will remain Deputy-Chairman. The board has appointed the Hon. Geoffrey Cunliffe (now General Manager) and Mr. George Boex (now Technical Manager) to succeed Sir Murray Morrison as Joint Managing Directors.

Mr. W. W. Vinsen, Manager of the Coventry Works, and Mr. E. S. Little, Comptroller & Head of the Accounting Department, have been elected Directors of the British Thomson-Houston Co. Ltd. Mr. Vinsen has been appointed Assistant Director of Manufacture, and will assist Mr. G. M. Campbell, Director of Manufacture.

COLONIAL RAILWAY APPOINTMENTS

The Secretary of State for the Colonies has approved the following appointment:—

Mr. H. M. Kirkland, District Engineer, Kenya & Uganda Transport Administration, to be Senior District Engineer, Kenya & Uganda Transport Administration.

The Crown Agents for the Colonies have made the following first class appointments:—

Mr. G. I. Thain to be Assistant Storekeeper, Nigerian Railway.

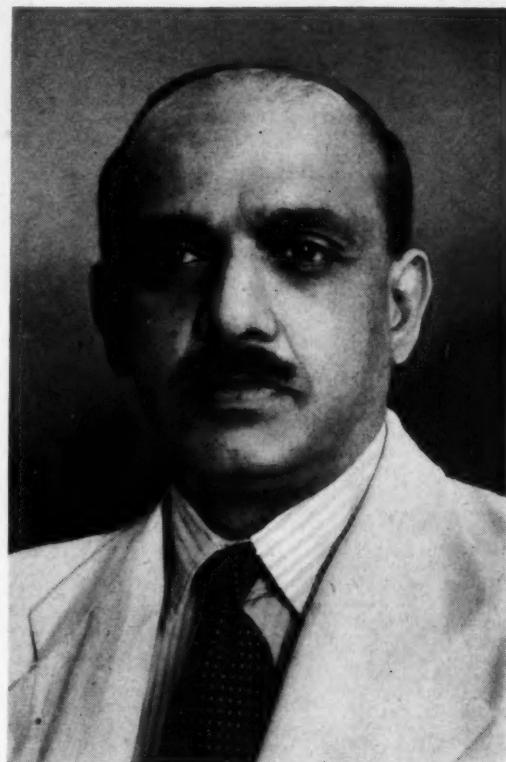
Mr. J. G. Sherry to be Assistant Engineer, Nigerian Railway.

Mr. H. M. Bertgues to be Assistant Road Transport Officer, Nigerian Railway.

Mr. D. G. Davies to be Assistant Accountant, Gold Coast Government Railway.

PRESENTATION TO MR. F. J. DUTTON

The Signal & Telegraph Engineer, L.M.S.R., and officers and members of his department met at Derby on January 18 to present Mr. F. J. Dutton with a cheque as a token of the department's good wishes on his retirement from the position of Divisional Signal & Telegraph Engineer, Derby, L.M.S.R. Mr. D. R. White (Mr. Dutton's successor), who presided, called on Mr. W. Wood, Signal & Telegraph Engineer, to make the presentation. Mr. Wood referred to Mr. Dutton's long service, and described him as an ideal pattern to the younger members of the department. Mr. H. E. Morgan, Divisional Signal & Telegraph Engineer, Crewe, and other officers wished Mr. Dutton a happy retirement.



Mr. S. M. Basrur
Appointed Chief Traffic Manager,
Great Indian Peninsula Railway

1937. Since then he has held other administrative appointments. Mr. Basrur was appointed Deputy Chief Traffic Manager in May, 1942.

INDIAN RAILWAY STAFF CHANGES

Mr. P. Wood, E.D., Financial Adviser & Chief Accounts Officer, G.I.P.R., has been granted two years' leave, preparatory to retirement, as from August 14.

Mr. R. Ramaswami Ayyar has been appointed to officiate in succession to Mr. Wood, as from October 3.

Mr. W. R. S. Morley, M.B.E., Deputy General Manager, B.B.C.I.R., has been granted 22 months' leave, preparatory to retirement, as from August 31.

Mr. L. A. Hill, Deputy Chief Engineer, B.B.C.I.R., has been granted 15 months' leave, preparatory to retirement, as from August 18.

Mr. S. F. Ahmed, Deputy Chief Engineer, E.I.R., has been granted 22 months' leave, preparatory to retirement, as from August 19.

Mr. Royston Macaulay Evans, Acting Chief Traffic Manager, Western Australian Government Railways, who, as recorded



Mr. R. M. Evans

Appointed Chief Traffic Manager, Western Australian Government Railways

elsewhere on this page, has been appointed Chief Traffic Manager, joined that service as a cadet in 1900. He became a Traffic Officer in 1909, and served in the Perth, Bunbury and Narrogin Districts until 1913, when he went to Head Office. After four years as Chief Clerk in the Merredin District Traffic Superintendent's Office, he became Timetables Clerk in the Chief Traffic Manager's Office, and was appointed Chief Transport Clerk in 1933. Two years later he went out as relieving District Traffic Superintendent, and in 1939 was appointed District Traffic Superintendent at Narrogin. In the next year he was appointed to the Perth District, and combined the posts of District Traffic Superintendent and Chief Clerk to the Chief Traffic Manager. Since February, 1944, he has been acting as Chief Traffic Manager, in the absence of Mr. Gilmour on sick leave, and is now confirmed in that position.

WESTERN AUSTRALIAN GOVERNMENT RAILWAYS

Mr. R. M. Evans, Acting Chief Traffic Manager, has been appointed Chief Traffic Manager, in succession to Mr. A. Gilmour, who has retired on account of ill-health.

Mr. O. Watson, District Traffic Superintendent, Merredin, has been appointed District Traffic Superintendent, Perth.

Mr. W. Barry, Station Relief Officer, Perth, has been appointed District Traffic Superintendent, Merredin.

Mr. C. S. Holm, who has been Comptroller of Stores since 1927, reached the retiring age in May, 1942, but his services were retained until November 1, 1944, from which date he has retired.

As Mr. Holm's successor the Commissioner of Railways has appointed Mr. L. T. Hickey, formerly Commercial Agent attached to the Secretary for Railways' Branch.

Mr. Hickey is succeeded as Commercial Agent by Mr. W. J. Okely, District Traffic Superintendent, Bunbury, which latter position has been filled by the promotion of Mr. A. Gordon, lately Stationmaster, Midland Junction.

Lt.-Colonel J. D. Lewis, M.C., District Locomotive Superintendent, Burma Railways, arrived in England recently on leave. Colonel Lewis was awarded the Military Cross for gallantry displayed after the Burma Railways had been taken over by the Army in Lower Burma, and before Rangoon had been evacuated. He continued, with a skeleton staff, to keep the railway in operation around Toungoo, in spite of air raids; and due to his leadership a whole division was maintained, and later withdrawn by rail.

We regret to record the death on January 28, in his 78th year, of Mr. Charles Cochrane Hussey, who retired on March 31, 1924, from the position of Chief Conveyancing Solicitor, Great Western Railway. Mr. Hussey entered the company's service in the Conveyancing Department in December, 1892.

Mr. L. T. Hickey, Commercial Agent attached to the Secretary for Railways' Branch, Western Australia, who, as recorded elsewhere on this page, has been appointed Comptroller of Stores, Western Australian Government Railways, joined the railway service in 1899 as a cadet in the Traffic Branch. Four years later he was transferred to the Stores Branch. In 1907 he returned to the Traffic Branch for two years, after which he was appointed to a position in the Audit Section of the office of the Comptroller of Accounts, where he remained for the next ten years, exclusive of a period of service with the 44th Battalion, A.I.F., during the last war. The decision of Colonel H. Pope (then Commissioner of Railways) to form a section to control the outdoor advertising, then let to a contractor, gave Mr. Hickey his next opportunity for advancement. After five years' service in that field, he was selected to take charge of the then newly-formed Commercial Section under the Secretary for Railways. The duties of that position were to further the interests of the department by making its services better known, and to endeavour to win back traffic from road competitors. After eight years on that work he was appointed by the Government to a small committee to draft a Bill

for the co-ordination of road and rail traffic; and when that measure became law he was seconded from the Railway



Mr. L. T. Hickey

Appointed Comptroller of Stores, Western Australian Government Railways

Department to take over the duties of Secretary to the Western Australian Transport Board. After about twelve months Mr. Hickey returned to the Railway Department as Chief Clerk & Claims Agent in the Traffic Branch, a position which he occupied for six years. He was appointed to the post which he has just vacated in 1940.

Lt.-Colonel K. Cantlie, R.E., recently visited the Chinese Embassy and was invested with the Blue, White & Red Collar of the Order of the Brilliant Jade.

Mr. Charles Edward Richards, senior conductor on the L.N.E.R. dining cars, and known to many who made the journey north from London by the "Flying Scotsman" before the war, has been honoured by the King with the bestowal of the Silver Medal of the Royal Victorian Order. Since 1903, when he was first appointed to the restaurant cars on the "Flying Scotsman," he has made alternate daily journeys to Edinburgh and back, and in this way has travelled well over four million miles attending to the needs of travellers. During his service, which was broken only during 1914-18, when the Ministry of Munitions claimed him, he has on many occasions been delegated to the charge of the royal train and important specials. He has served four Kings of England, as well as foreign royalties. Since 1939 he has travelled on many secret missions with important people; possibly the most secret was in 1943 in connection with the arrival of M. Molotov for the signing of the Anglo-Soviet treaty. In addition to regular runs on the "Flying Scotsman," between 1934 and 1939, during the summer, he was in charge of the L.N.E.R. luxury cruise train, the "Northern Belle," which left Kings Cross on Friday nights and made a grand tour of England and Scotland before returning to the same station a week later; Mr. Richards went with every trip. During the present war he has been employed at the headquarters of the L.N.E.R.



Mr. C. E. Richards

Senior conductor, L.N.E.R. dining cars, awarded Silver Medal of Royal Victorian Order

February 2, 1945

THE RAILWAY GAZETTE

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L.M.S.R. STAFF CHANGES

The following staff changes are announced by the L.M.S.R.:-

Mr. G. S. Bellamy, Acting Mechanical & Electrical Engineer (Scotland), to be Mechanical & Electrical Engineer (Scotland), from January 1, in place of Mr. R. A. Riddles, now Chief Stores Superintendent.

Mr. F. Fawcett, Engineering Assistant, Northampton, to be Assistant to District Engineer, Barrow, in place of Mr. A. Tims, promoted.

Mr. J. W. Starkey, Area Technical Assistant, Signal & Telegraph Engineer's Department, Chester, to be Divisional Assistant (Telegraphs), Signal & Telegraph Engineer's Department, Manchester, in place of Mr. J. Howarth, deceased.

Mr. S. M. Taylor, Signal & Telegraph Inspector, Crewe, succeeding Mr. J. W. Starkey as Area Technical Assistant, S. & T. Engineer's Department, Chester.

G.W.R. APPOINTMENTS

The Great Western Railway announces the following appointments:-

Effective from January 29:-

Mr. W. H. Victory, Assistant to Chief Docks Manager, Cardiff, to be General Assistant to Chief Docks Manager, Cardiff.

Mr. R. Dixon, Assistant to Chief Docks Manager, Cardiff, to be Assistant to Chief Docks Manager (London & Provinces).

Mr. L. G. Taylor, Assistant Dock Manager, Swansea, to be Assistant to Chief Docks Manager, Cardiff.

Mr. W. Jeffers, Assistant Dock Manager, Cardiff, to be Assistant to Chief Docks Manager, Cardiff.

Mr. J. D. Reed, Harbourmaster & Marine Assistant, Fishguard, to be Marine Superintendent, Chief Docks Manager's Office, Cardiff.

Mr. A. J. Walden, Head of Staff Section, Chief Docks Manager's Office, Cardiff, to be Staff Officer, Chief Docks Manager's Office, Cardiff.

Mr. F. C. Coleman, Assistant Dock Manager, Newport, to be Assistant Dock Manager, Cardiff.

Mr. W. A. C. Morris, Head of General Cargo Section, Swansea, to be Assistant Dock Manager, Swansea.

Mr. L. F. B. James, Assistant Dock Manager, Barry, to be Assistant Dock Manager, Newport.

Mr. N. C. Hockley, Chief Clerk, Dock Manager's Office, Cardiff, to be Assistant Dock Manager, Barry.

Effective from February 3:-

Mr. C. L. Simpson, Divisional Locomotive Superintendent, Bristol, to be Divisional Locomotive Superintendent, Newport, on the retirement of Mr. W. E. Baines.

Mr. H. N. S. Edwards, Divisional Locomotive Superintendent, Cardiff, to be Divisional Locomotive Superintendent, Bristol.

Mr. S. E. Tyrwhitt, Assistant Divisional Locomotive Superintendent, Newport, to be Divisional Locomotive Superintendent, Cardiff.

Mr. J. Colclough, Assistant to Divisional Locomotive Superintendent, Newport, to be Assistant Divisional Locomotive Superintendent, Newport.

Mr. H. R. Cox, Draughtsman, Swindon, to be Assistant to Divisional Locomotive Superintendent, Newport.

Effective from April 16:-

Mr. E. T. Davies, Resident Engineer, Reading, to be Divisional Engineer, London, on the retirement of Mr. R. C. Y. Kirkpatrick.

Effective from January 1:-

Mr. W. F. Wilton, Senior Surveyor & Draughtsman, Chief Engineer's Office, Paddington, to be Assistant, Chief Engineer's Office, Paddington.

TRANSPORT SERVICES AND THE WAR—279

Salvage on the Railways

During 1944 more than 360,880 tons of scrap were disposed of by the British railways. This figure included 342,100 tons of iron and steel; 9,540 tons of non-ferrous metal scrap; 5,880 tons of paper and cardboard; 800 tons of rags and textiles; 610 tons of rope, string, and twine; nearly 200 tons of rubber; 220 tons of broken glass; 13 tons of bones; and upwards of 1,500 tons of waste food scraps. During the same period the railways also disposed of 579,990 bottles.

Army Post Office Mail Train

Since May, 1941, the Army Post Office in Nottingham has handed over to the L.N.E.R. one and a half million bags of mail for transport from Nottingham (London Road) Low Level Station to the British fighting forces. Today 60,000 mail bags a week are sent from Great Britain to the British Liberation Armies, and credit is due to the railway authorities in Nottingham for expeditious handling and rapid transport which has contributed much to the subsequent speedy delivery of mail in the Field by the Army Post Office.

Every letter mailed in Great Britain to a soldier serving overseas is sent automatically by the G.P.O. to the Army Post Office centre in Nottingham. This tremendous mail is then sorted by A.T.S. girls and men of the Army Post Office, and the bags of reassembled letters, news packets, and parcels are directed to individual units in Europe. The filled mail bags leave in a continuous stream to be loaded on the train of box wagons at the L.N.E.R. station at Nottingham (London Road), of which we reproduce an illustration at page 114.

Six weeks before "D" Day the troops who were to take part in the invasion of Europe were moved as a security measure to quarters which were secret from their relatives, and the whole of their mail was sent to Nottingham to be redistributed to addresses known only to the Army Post Office. As soon as "D" Day arrived, the mail for the troops who went overseas was concentrated in the special train from Nottingham, bound for a South-East port. Its present schedule is as follows:-

Nottingham London Road Low Level, L.N.E.R., dep. 10.28 p.m.
Kensington (junction point with Southern Railway) arr. 3.20 a.m.
Dover (Southern Railway) arr. 6.30 a.m.

The train takes 300 bags of mail to a box wagon. Each bag weighs about 56 lb. and contains an average of 95 news packets and 9 parcels.

Other Army mail from Nottingham (London Road) Station is despatched in individual vans to Scotland and East and North-East Coast ports. The mail for the Far East, India, and East Africa leaves from nearby Daybrook Station.

Madrid-Lisbon Train

It was reported on January 18 that the Lusitania Express, the luxury train running between Madrid and Lisbon, would make only one journey weekly each way, instead of three, because of fuel shortage. The Spanish Government reversed this decision on the next day "for the sake of Peninsular relations" and decided to continue the thrice-weekly workings.

Supplies for Paris

It is reported from Paris that the French authorities are discussing with the Allied military authorities provisional arrangements for military trains to assist in taking essential supplies to Paris.

It is understood that a proposal of the military authorities which has been accepted in principle is to use certain empty trains subject to their being loaded and unloaded without any delay.

West European Railway Restoration

It was announced on January 28 that American Army Engineers, helped by French civilians, have now restored to working some 7,000 miles of railway, to supply the Western Front in France and Belgium; 5,000 miles are double track. Also, 172 major bridges have been restored.

India-China Road Open

On January 23 Admiral Lord Louis Mountbatten, Supreme Allied Commander, South-East Asia, announced that "the first part of the orders I received at Quebec has been carried out. The land route to China is open." The Ledo-Mojaung-Myitkyina-Bhamo-Namhkam road entering Yunnan (China) at Danting is now completed and entirely in Allied hands. The first supply convoy crossed into China on January 28.

German Train Service Deterioration

Further details have now come to hand concerning the remarkable deterioration in German railway passenger services in recent days. As we briefly announced last week, all "D" (express) and "E" (fast) trains, including the public compartments attached to leave trains, were cancelled throughout Germany as from midnight on January 22-23. On Sunday (January 21), according to a report from Stockholm, enormous green posters were placed at the Berlin railway stations announcing the suspension, and banning civilians from using any of the surviving trains excepting for journeys to and from work.

It would appear that the suspension was caused by the need for the Reichsbahn management to plan austerity skeleton services of far greater severity than had been contemplated in even the most severely adverse conditions envisaged. Then it was announced that, beginning on January 26, there would be a limited network of fast "service" trains (*Dienstzüge*) for travellers whose journeys were essential to the war effort. It was added that permission to use these trains must be obtained individually by each passenger from the Reichsbahndirektion concerned. The previously-existing system of travel permits would still apply by slow trains, but permits would now be needed for all journeys exceeding 75 km. (47 miles) instead of 100 km. (62 miles) as hitherto.

One result of this drastic curtailment of public railway facilities was the immediate modification of postal communications. From January 22, no private letters have been allowed between any two towns in the Reich; only postcards may be used. Letters became confined to communications between two persons in the same town. The only exception is for letters addressed to Government or local authorities, or to war priority establishments.

The foregoing remarks apply to the main Reich. In East Prussia chaotic conditions arose immediately Soviet Forces burst through the border defences. On January 18 refugees from the regions of Danzig and Posen, and from "Wartheland" generally, began streaming westward, ignoring orders limiting travel to civilians with permits. Trains were stormed, and it is stated that the police and the military authorities tried in vain to stem the tide. Immediately, all public

transport to East Prussia was stopped, and the railways were used exclusively for evacuation traffic and military needs. Such traffic lasted only two or three days, as the Russian advance in Central Poland severed practically all main-line connections.

Fast-Train Supplements in Germany

Even before the present deterioration, the system of fare supplements for the use of semi-fast (E) and fast (D) trains in Germany was modified on January 1. The five distance zones were replaced by two zones only, namely, up to 300 km. (186 miles) and beyond that distance. The new supplements are as follow:—

SUPPLEMENTS FOR THE USE OF SEMI-FAST TRAINS (EILZUGE) FROM JANUARY 1, 1945

		1st and 2nd class	3rd class	RM.
Up to 300 km. ...		1.50	0.75	
Beyond 300 km. ...		1st and 2nd class	3rd class	2.50

Fast train supplements are double the semi-fast supplements. Railcars are considered to be fast trains for the purpose of the application of the supplements.

For comparison, the previous supplements are shown in the following table:—

SUPPLEMENTS IN FORCE UP TO DECEMBER 31, 1944

	Semi-Fast Trains		Fast Trains		
	2nd class RM.	3rd class RM.	1st class RM.	2nd class RM.	3rd class RM.
1st zone : Up to 75 km. ...	0.50	0.25	*	*	*
2nd zone : From 76 to 150 km. ...	1.00	0.50	*	*	*
3rd zone : From 151 to 225 km. ...	1.50	0.75	3.00	3.00	1.50
4th zone : From 226 to 300 km. ...	2.00	1.00	4.00	4.00	2.00
5th zone : Beyond 300 km. ...	2.50	1.25	5.00	5.00	2.50

*Lower supplements for the first and second zones were abolished as from January 15, 1940.

In addition, a special supplement was levied for the use of long-distance fast trains (FD-Zuge or Fernschnellzüge) which was RM. 2 for first and second class up to 300 km. (zone A) and RM. 1 for third class. Beyond this distance (zone B) the supplement was RM. 3 for first and second class and RM. 1.50 for third class. It is not stated whether FD supplements were abolished, or remained unchanged, but they could have applied to very few trains.

Japanese Railway Transport Capacity

According to a recent announcement made by Goto, the former Japanese Minister of Transport, the efforts made by the authorities to increase the transport capacity of the Japanese railways have proved successful. He stated that in November, 1944, the goods traffic per mile was 303 per cent. in excess of that in 1936; with passenger traffic, the increase was 220 per cent. During the same period the locomotive stock rose by 149 per cent.; the coaching stock by 120 per cent.; and the goods wagons by 175 per cent.

Reductions in the number of passenger trains had enabled more locomotives to be available for goods traffic. The last curtailment of passenger traffic was decreed on October 11, 1944, enabling 20 more trains for armament workers and 28 additional goods trains to be worked. The large-scale diversion of goods from coastal shipping to the railways (to which we have referred on a number of occasions) is said to have resulted in the railways carrying, as from August last, about one-third of the goods moved in Japan. This means an increase of about 150 per cent. over the 1941 total. The diversion from coastal shipping to the railways began in October,

1942, was intensified during 1943, and reached its maximum in the summer of 1944.

An Indian Railway's War Production

Munitions and military stores valued at more than Rs. 40 lakhs have been produced during the present war by workshops of the Madras & Southern Mahratta Railway. The railway has constructed three ambulance trains.

Indian Railway Achievements

Every minute, Indian railways are carrying 64,000 passengers and 52,000 tons of goods over one mile. Between April, 1939, and May, 1944, the number of passengers carried has increased by 30 million a month; 850 military special trains are run every month.

Since war began, Indian railways have delivered more than 10 million tons of material for the construction of airfields.

Increased Suburban Fares in Chicago

Two years ago the railways serving the suburban areas of Chicago, in conformity with a wartime decision of the Interstate Commerce Commission, scheduled with the Illinois Commerce Commission an increase of 10 per cent. in Chicago suburban season ticket rates. The Illinois Commerce Commission, however, denied the railways the right to make the increase, and the railways thereupon took the case to the Superior Court of Cook County, from which they obtained an injunction restraining the Illinois Commerce Commission from interfering in the matter. The latter then appealed to the Illinois Supreme Court, which gave a decision on September 19 upholding the injunction obtained in the lower Court, and setting aside the Order of the Illinois Commerce Commission. The railways concerned are the Chicago, Burlington & Quincy; Chicago, Rock Island & Pacific; Chicago, Milwaukee, St. Paul & Pacific; and the electric interurban Chicago, North Shore & Milwaukee. The Illinois Central and the Chicago & North Western had already obtained favourable rulings from the Illinois Supreme Court. Only in the case of the Chicago & Western Indiana has the Illinois Commerce Commission been sustained in its action.

Steel for U.S. Railways in 1945

The War Production Board of the United States has made its allocation of steel which steelworks will be permitted to manufacture for transport use during the first quarter of 1945. The total allocation of 1,254,838 tons, which covers highways and waterways as well as railways, is short of the 1,585,847 tons requested by the Office of Defense Transportation, but well above the 1,039,100 tons allocated in the last quarter of 1944. Of the railway proportion, 507,000 tons is earmarked for steel rails, but this is substantially below the 600,000 tons requested, which would have been practically the maximum tonnage of controlled-cooled rails that the existing steel plants could have handled.

Freight stock materials have been allocated sufficient for the construction of 2,300 bogie box wagons; and passenger stock materials for the building of 105 passenger carriages, which is less than one-tenth of the vehicles now on order, and far below the 250 a quarter that the O.D.T. regards as desirable. These will be chiefly "coaches" (the equivalent of British third class) with some baggage and mail cars. If possible, the coach material allocations will be increased in later quarters of the year.

Materials for locomotives are being released in accordance with the building programme that has been sanctioned. With the carbon steel, proportionate quanti-

ties of alloy steels, aluminium, and copper are released simultaneously. Steel requirements for lorries, buses, trams, and trailers are cut in much the same ratio as that for railways, and those for water transport rather more drastically.

U.S.A. Motor Lorry Manufacture

The U.S.A. Office of Defense Transportation has announced that less than one-fourth of the motor lorries estimated as needed to meet essential war and civilian transport requirements during 1945 will be produced and distributed to commercial operators. The estimate is based on the 1945 civilian motor lorry programme approved by the War Production Board. Increased demand by the armed services for all types of motor transport was given as the chief reason for the severe reduction.

The total authorised programme amounts to 186,792 light, medium, light heavy, and heavy heavy lorries, or 24.1 per cent. of the O.D.T. stated requirement of 773,935 vehicles. To emphasise the present and future increased needs of the armed services for more motor transport, the O.D.T. pointed out that the approved 1945 programme is also sharply reduced from previous allocations tentatively approved for the first six months of 1945. The final authorisation is only four-fifths as large as the total of 235,905 lorries that earlier allocations made last summer and autumn indicated as the possible 1945 schedule.

War Railway Committee in Australia

The system of control of land transport introduced by the Australian Commonwealth Government in December, 1941, under National Security Regulations, and amended in March, 1942, was further amended by Statutory Rule No. 49 on March 14, 1944. Reference to this is made in the annual report (for the year ended June 30, 1944) of the Commissioner for Railways of New South Wales. This Statutory Rule provided for the Commonwealth Minister for Transport to "have power and authority to control, regulate, and direct the transport of goods and passengers by rail or road within the Commonwealth." The Land Transport Board was disbanded and Sir Harold W. Clapp, K.B.E., who had been Chairman of the Board, was released from all administrative work for the purpose of undertaking the preparation of a special report on railway unification of gauge, but retained the title of Director-General of Land Transport. Provision was also made for the reconstitution of the War Railway Committee with a membership consisting of:—

- (a) the Minister for Transport;
- (b) the Director-General of Land Transport;
- (c) the Secretary, Department of Transport;
- (d) the Commonwealth Railways Commissioner, the Commissioner for Railways in the State of New South Wales, the Chairman of the Victorian Railways Commissioners, the Commissioner of Railways for the State of Queensland, the Railways Commissioner for the State of South Australia, the Commissioner for Railways for the State of Western Australia, and the Transport Commissioner for the State of Tasmania;
- (e) the Director of Rail Transport;
- (f) a member appointed by the Minister of State for the Army;
- (g) two representatives of industrial organisations of railway employees (appointed by the Minister), and
- (h) such additional members, not exceeding two, as the Minister appoints.

The Minister for Transport & External Territories, the Honourable E. J. Ward, M.H.R., was appointed Chairman, and Mr. T. J. Hartigan, New South Wales Commissioner for Railways, was appointed Deputy Chairman.

The Recovery of the Jugoslav Railways

By Our Balkan Correspondent

Large parts of Jugoslavia have now been liberated by the National Liberation Army, many of which in recent years have been constant battlefields cut off from the rest of the country as all communication lines had been destroyed. It was therefore impossible to supply the local populations of South Serbia, Montenegro, Dalmatia, Bosnia, and Southern Croatia with any food or other material. One of the first decisions taken by the National Liberation authorities was therefore the reconstruction of existing railway lines and the construction of new ones for the liberated territories.

In their retreat the Germans, with their usual thoroughness, have destroyed all lines and bridges, and the reconstruction and repair of these are today the main concern of the authorities. Up to now about 16,000 km. of railway line and many bridges have been repaired.

Because of the rapid advance of the Red Army in Jugoslavia, the Germans were unable to destroy the large railway repair workshops at Petrovgrad, but the workers there discovered no fewer than 370 mines and booby traps. The factory is now in operation, and its capacity is the repair of 30 passenger carriages or goods wagons a week; 1,874 passenger carriages and 104 locomotives are still awaiting repair. Certain work is also being done in the open, by mobile workshops, which repair damage on the spot. Thus, in the area of the Bosanska Krajina, 357 km. of single-track line and 400 km. of forest line have been repaired. These lines are Prijedor to Sanski Most and Drvar, and Drvar to Jajce, Bugojno, and Donji Vakuf. For these repairs 50,000 new sleepers were necessary.

The speed with which railway lines are being repaired and restored into use is exemplified by the following list showing the opening of lines in the months of October and November, 1944:

October 2: Belgrade to Lajkovac and Mladenovac; Lajkovac to Valjevo; and Paraćin to Zaječar.

October 24: Belgrade to Mladenovac, Velika Plana, Lapovo, and Kragujevac; and Požarevac to Kučevac.

November 1: Lajkovac to Gornji Milanovac; Zaječar to Prahovo; and Bela Palanka to Tsaribrod.

November 2: Velika Plana to Mala Krsna and Smederevo; and Lapovo to Paraćin.

November 3: Cuprija to Ravnica Reka; Paraćin to Stalač; and Djuniš-Nish.

November 8: Nish to Zaječar; and Nish to Bela Palanka.

November 14: Nish-Grdelica.

November 24: Belgrade to Gornji Milanovac.

Repairs are progressing in the Vojvodina on the following lines:—

Novi Sad to Subotica; Novi Sad to Sombor; Novi Sad to Titel; and Subotica to Horgoš, Stari Bečeji, Sombor, and Subotica.

From Petrovgrad trains are already working regularly to Pančevo, Vršac, Velika Kikinda, Kličane, etc.

The first ambulance train, equipped with all modern appliances, left Belgrade for Smederevo in the middle of January.

The greatest attention is paid to the lines running down the Vardar Valley, and indeed to all railways running due south, because these are the routes along which food and reconstruction material will reach liberated Jugoslavia.

In the first month after the liberation of Dalmatia, national labour battalions repaired the important railway viaduct near Salin, which is the only connection between the port of Split and the hinterland. This viaduct, constructed in timber, was put into commission on November 19, 1944. The significance attached to the work of railway reconstruction can be seen from a lengthy article in the paper *Slobodna Dalmacija* for November 25 last, entitled "The first victory of reconstruction." This first victory was the reconstruction of the entire railway between Split and Sinj, which was accomplished in 18 days. The same paper also gave prominence to the railway system of Bosnia, where 757 km. of line have been liberated.

During the fighting and retreat of the German army from Belgrade, the station at Zemun was destroyed and the line from Zemun to Indija blown up. In three weeks the line was repaired, and

work on the construction of a new station is in progress.

The Šibenik-Perković line has been reconstructed, and work is still in progress on the repair of the railway stations of these two towns. One locomotive and 99 wagons have been repaired for the traffic between these two places; 1,100 men worked on these repairs.

There are, however, territories in Jugoslavia still under enemy occupation, and in these a constant fight for communications is in progress. From one side the Germans are making every effort to keep the existing communications open for the supply of their troops, while on the other side National Liberation Forces endeavour to wreck every track, station, or train which might be of any use to the Germans. A typical example of this is the much fought for line from Ljubljana to Zidani Most, in Slovenia, on which all traffic has been suspended for the last three months. The Germans are still trying to repair this line and resume traffic. Partisan mine-laying units have paralysed traffic on this line; in two months they wrecked 12 railway bridges and several miles of double track between Ljubljana and Litija.

The Assam Railways & Trading Co. Ltd.

The annual general meeting of the Assam Railways & Trading Co. Ltd. was held on January 23 at Winchester House, Old Broad Street, London, E.C.2. Mr. E. A. A. Joseph, the Chairman of the company, presided.

The Chairman said that as the accounts for the past year had not been received, it would be necessary to adjourn the meeting. Shareholders would receive notification of the adjourned meeting, together with the report and accounts. He cautioned them against assuming that the trading profits of the past two years necessarily would be repeated in the future and pointed out that if the railway were sold it would be necessary to agree a new standard for E.P.T., the burden of which could not yet be forecast. The retiring director, Mr. E. A. A. Joseph, was re-elected; the auditors, Messrs. Price, Waterhouse & Co., were re-appointed, and the meeting was adjourned.

An extraordinary general meeting was then held to consider a resolution authorising the directors to sell to the Government of India for £1,770,000 the company's railway undertaking with the colliery-line extension and all stocks and stores, and to negotiate terms with the debenture stockholders for the repayment of their stock.

The Chairman in the course of his speech said that the control of the railway has been assumed by the Bengal & Assam Railway as a military measure by orders passed under the Defence of India Act on April 1, 1942. As soon as the board had full information from the agent in India it addressed the Secretary of State in May, inquiring what principle was suggested for indemnifying the company against loss and, realising that the line might undergo great alterations, it intimated that although the Administrator-General had in his order disclaimed any intention of acquisition of the line, the company was prepared to examine the matter if that seemed the simplest solution.

Conversations had continued for more than a year. Although the company succeeded in obtaining a rent of Rs. 16 lakhs and in securing oral acceptance of most of

its other terms, no lease was in fact ever executed. The conversations regarding a sale terminated in a meeting held in December last, but it was not until the present month that the terms then agreed were formally recorded. As soon as that was done the Board at once informed shareholders of the result.

TERMS OF OFFER

The price offered and which the Board had agreed to recommend was £1,770,000. This did not, however, show quite the whole picture. In addition to this cash payment Government had agreed while acquiring the assets of the line to waive all claim to the railway renewals and depreciation reserve, which, on March 31, 1943, amounted to £146,693 and by now should be in the neighbourhood of £173,000. These reserves would be freed for distribution. Furthermore, the interests of the permanent railway staff had been secured by an undertaking to employ all those who wished for transfer, and the Government would accept liability for their accumulated gratuity and leave rights which would otherwise have cost the company a further £13,700 or so.

It was proposed to transfer the whole of the railway system, including the so-called "colliery line" south of the Dehing River right up to Lekhapani Junction together with the railway workshops, offices, bungalows, etc., at Dibrugarh. The company proposed to go out of business as railway owners, retaining only for its own use the sidings to its collieries, mills and forests, and one bungalow at Dibrugarh.

By the articles of association the directors had power to accept the offer on their own responsibility, but in a matter of this importance they felt it right to leave the final decision to the shareholders.

It was quite clear that the Government of India intended to have the line, and under the Defence of India Act it had powers of compulsory acquisition. The Board was satisfied that if those powers came to be exercised the terms received would be no better than those now offered. It was equally satisfied that supposing the Government had been willing

to wait till 1951, when it could acquire the railway under the terms of the concession, the situation would not be likely to be any more favourable for the company.

The company's Acts prescribed the way in which in certain contingencies money obtained by the sale of the railway or other divisible profits should be distributed and the directors were advised that as the sale now proposed was not made under the terms of the concession an Order of the Court will be required for the reduction of capital. A scheme following as far as possible the order of priority laid down in the Act should be agreed and taken before the Court for sanction.

The first thing then would be to pay off the debentures. Not being one of the dates provided for in the debenture trust deed, the price of 105 mentioned therein did not apply, and this repayment had to

be a matter of agreement with the trustees for the debenture holders. The Board had been in communication with the trustees and some representative stockholders, trust and investment companies, and had got as far as a tentative understanding, but the debenture stockholders would have to hold their own meetings. Next the preference "A" shares and new 6 per cent. preference shares would be paid off in full, the former carrying their premium of 20 per cent.

They then came down to the *pièce de résistance*—the claims of the "A" stockholders for arrears of dividend and for capital repayment. There were many difficult questions to be investigated before he could say exactly how far it would be possible to go. There were complex taxation questions both here and in India, and there was the question of obtaining permission to borrow a reasonable

amount of money to enable the company to finance that part of the liability for which the company had not cash immediately available. When these were solved the directors would call a further meeting and put precise proposals before it, but he thought he could say that they had a fair hope of satisfying in some form the arrears of dividend (amounting on March 31, 1945, to 102 per cent.) and of paying off at least the greater part of the capital.

The Chairman concluded by moving the resolution.

Mr. D. W. Turner seconded the resolution and, after some congratulatory remarks by shareholders and after the Chairman had replied to a few questions, it was carried *nem. con.*

The proceedings terminated with a vote of thanks to the Chairman and directors, and also to the Secretary, Mr. S. Maclean Jack, and the staff in India and London.

Questions in Parliament

London and Durham Train Services

Mr. J. D. Murray (Spennymoor—Lab.) on January 24 asked the Parliamentary Secretary to the Ministry of War Transport if he was aware that because of the limited number of trains to and from Kings Cross, London, which stopped at Durham, L.N.E.R. Station, much inconvenience and loss of time was experienced by the travelling public; and, as the first daytime train from London which stopped at Durham arrived there at 9.35 p.m. and that no through train from Durham to Kings Cross was available between 8.32 a.m. and 7.3 p.m., would he arrange for more trains on this route to stop at Durham.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport) stated in a written answer: Passengers from Kings Cross can travel to Durham by trains which leave at 4.15 a.m., 10 a.m., and 12.45 p.m. Passengers from Durham to London can travel on trains which leave at 7.40 a.m., 12.16 p.m., and 2.56 p.m. On these trains, a change must be made either at York or Darlington. The traffic on this line is very heavy, and I regret that more long-distance trains could not be stopped at Durham without seriously affecting the general operation of the goods and passenger services involved.

Work Stoppage on Underground

Sir Herbert Williams (South Croydon—C.) on January 18 asked the Minister of Labour if he had any statement to make in respect to the Christmas Day strike on the railways of the L.P.T.B.

Sir Waldron Smithers (Chislehurst—C.) also asked the Minister of Labour what disciplinary action he proposed to take under his special wartime powers against those members of the staff of the L.P.T.B. who failed to report for duty on Christmas Day.

Mr. Ernest Bevin (Minister of Labour & National Service): In this case the men absented themselves from work on Christmas Day on the ground that they were not allowed a compensatory day's leave in lieu. The stoppage, which all of us deplore, occurred despite the efforts of the union to secure normal working in accordance with existing agreements. Discussions are proceeding, I understand, at present between the L.P.T.B. and the unions concerned, and it is desirable not to take any action that might prejudice the outcome of the discussions which are likely to have permanent value.

Sir Waldron Smithers: Is it not pos-

sible to bring home to these men the great inconvenience and discomfort they caused to many thousands of people especially, speaking from my own experience, to women with little children?

Mr. Bevin: I think it has been brought home to them, but I would like to impress on the House the fact that these men, both on the buses and on the tubes, have carried on through this war in a most amazing manner.

Vice-Admiral E. A. Taylor (Paddington South—C.): Has any endeavour been made by the trade unions to stop these unofficial strikes?

Mr. Bevin did not reply.

Cheltenham Race Train

Mr. D. L. Lipson (Cheltenham—Ind.) on January 24 asked the Parliamentary Secretary to the Ministry of War Transport who ordered the special non-stop race train from London to Cheltenham and back on January 6; what disciplinary action had been taken against him; how many coaches were there on the train and how many passengers; what was the cost involved; would this have to be met by the taxpayer; and what amount of coal was consumed on the two journeys.

Mr. Noel-Baker in a written answer stated: The responsibility for running this train rests with the Great Western Railway Company. The Minister of War Transport has seen the Chairman of the company, who has expressed to him regret for this breach of his instructions, and has assured him that steps have been taken to prevent any further breach in future. The Board and Management of the company are dealing with the individual officers concerned. The train consisted of 11 coaches and carried 66 passengers. I can assure Mr. Lipson that no charge in respect of the train will fall on public funds. The coal consumed was approximately six tons.

Forth Road Bridge

Mr. A. Woodburn (Clackmannan & Eastern—Lab.) on January 24 asked the Parliamentary Secretary to the Ministry of War Transport, whether any early decision was to be expected to build a road bridge over the Forth.

Mr. Noel-Baker stated in a written answer: His Majesty's Government does not consider that the construction of a road bridge across the Forth can be accorded a high priority among the public works required after the war. It will keep the matter under review, and will consider whether progress can be made with any preliminary work that may be needed by way of further investigation or the prepara-

tion of plans. I should explain, however, that such work could be undertaken only when the technical staff required could be released from other work of higher priority.

SWISS NEWLY-ELECTRIFIED LINE.—Electric traction has been introduced on the Swiss Federal Railways standard-gauge line between Herzogenbuchsee and Lyss *via* Solothurn. Herzogenbuchsee is about midway between Berne and Olten on the Berne-Zürich main line, and Lyss is on the Berne-Bienne main line. The distance between the two places *via* Solothurn is about 23½ miles, but the electrification concerned only some 22 miles, as the Solothurn-Lyss line joins the Berne-Bienne line, which was already electrified at Busswil, to the west of Lyss.

CLOSING OF SCREW-GAUGE ALLOCATION CENTRE.—For the past two years manufacturers have had to purchase their screw-gauge requirements as directed by the Screw-Gauge Allocation Centre, set up in October, 1942, by mutual agreement of the Machine Tool Control and the screw-gauge makers to meet the condition then prevailing, by means of which scheme it was possible to allocate certain pitches of screw threads to each maker, and to prevent duplication of orders. The successful adjustment of the supply and demand position had made it possible to consider the closing down of the Screw Gauge Allocation Centre and the restoration of normal procedure. It has been decided that this shall take place as at January 31; and from February 1 all intending purchasers of screw gauges should address inquiries to their usual suppliers and not to the centre.

BRITISH WORK ON PERSIAN RAILWAYS

(Continued from page 113)
shortly before the British staff made over charge to the Americans. Meanwhile, however, additional telephone lines were erected, and the system generally was reorganised and greatly improved.

There is no doubt that the traffic control system contributed as much as any one other factor to increasing the line capacity of the Persian system by the elimination of delays *en route* at crossing stations, thereby avoiding much unnecessary reactionary delay. It is practically certain that traffic control will remain in force in Persia after the war.

(To be continued)

Notes and News

Assistant Engineers Required.—Assistant engineers are required by the Tanganyika Government Railways for one tour of 24-26 months with possibility of permanent and pensionable employment. For full particulars see our official Notices on page 123.

Fire on "Poona Mail."—Nine coaches of the "Poona Mail," Great Indian Peninsula Railway, which left Bombay on the evening of December 9 caught fire near Lonavla, on account, it is believed, of an electrical short circuit. There were no casualties.

Cost-of-Living Index.—The official cost-of-living index figure at January 1 last was 102 points above the level of July, 1914, compared with 101 points at December 1 last. In January, 1939, it was 55 points, and in January, 1940, 74 points above July, 1914.

Railway Strike in New Zealand.—Railway services in Auckland Province ceased at midnight, January 22-23, as a result of dispute between railwaymen and the Government. Work was resumed at midnight, January 26-27, pending a decision concerning wages.

Assistant Engineer (Civil) Required.—An assistant civil engineer is required by the Gold Coast Government Railway for one tour of 12-24 months, with possibility of permanent and pensionable employment. For full particulars see our Official Notices on page 123.

Railway Tariffs in Chile.—It is reported from Santiago that the administration of the Chilean State Railways has asked the Government to authorise an increase of 8·7 per cent. in goods rates and passenger fares. This increase it is stated, has become necessary to meet increased expenses.

Buenos Ayres Western Railway Limited.—A payment of one half-year's arrears of interest to December 31, 1944, less tax at 10s. in the £, will be made on March 23 on the 4 per cent. and 5 per cent. debenture stocks to all holders registered on February 9. The payment was due on January 1, 1945.

Waste Paper Salvage.—The Minister of Supply, Sir Andrew Duncan, stated in the House of Commons on January 17 that every effort was being made to maintain the maximum possible collection of waste-paper, which was of the greatest importance in view of the continuing difficulties of the paper supply position.

Belfast & County Down Railway Company.—The half-year's dividend on the £50,000 of 4½ per cent. "A" preference stock is to be paid, making the full payment for the year. No dividends for the year 1944 are payable on the 5 per cent. and 4 per cent. preference stocks or on the ordinary stock. This is because of the recent accident on the Bangor line.

Typical Canadian Railways.—Two sets of postcards, each containing 24, have been issued by the Canadian Pacific Railway to illustrate representative selection of its employees. Each postcard shows a colour drawing by Miss Kathleen Shackleton of a member of the C.P.R. staff, the name and occupation of whom is given, together with a brief description of his work. The problem of making a representative selection was difficult, and the artist limited her subjects mainly to those who wore some kind of distinctive costume; she further was guided in her selection by

representatives of the railway labour organisations and by officers of the C.P.R. Operating Department.

Puerto Cabello & Valencia Railway Co. Ltd.—At the ordinary general meeting of this Company held on December 14 last, at 69, Old Broad Street, E.C.2, a special resolution was passed to the effect that the company be wound up voluntarily and that Mr. Joseph Thomas Dillon, of 69, Old Broad Street, be appointed liquidator for the purpose of such winding up.

Police Guards for Sind Railway Stations.—An order by the Sind Government that police guards be posted at all isolated railway stations is the result of a recent raid by 20 dacoits, carrying firearms, on Humayun Station, between Ruk and Jacobabad, North Western Railway. The Stationmaster was shot dead and the Assistant Stationmaster seriously injured. After looting cash, the dacoits departed.

Explosion on Central Argentine Railway.—It is reported that an explosion occurred on January 25 on the Central Argentine Railway about seven miles on the Buenos Aires side of the city of Córdoba. It derailed a goods train consisting of a locomotive and six wagons, and destroyed the track for 65 yards. The engine driver saw the obstruction and pulled up before the explosion. No lives were lost. The cause is believed to have been sabotage.

Westinghouse Brake & Signal Co. Ltd.—A preliminary statement shows that the net profit for the year to September 30, 1944, was £161,894 (£173,274), but the former figure may be subject to a taxation adjustment. Pensions again receive £15,000, but the amount allocated to contingencies is reduced from £80,000 to £70,000. The dividend for the year is 10 per cent. and a bonus of 4 per cent. is being paid, both the same as for the previous year. The amount to be carried forward is £93,872, compared with £95,544 brought in.

Viceroy on Post-War Transport in India.—In a recent address to the Transport Advisory Council, reported by Reuters from New Delhi, the Viceroy of India said: "It seems to me that the first step in all schemes for the social progress of which India is in such desperate need must be an improvement of means of communication, not only of main roads but minor districts and village roads. After the war it must be expected that motor vehicles will play a far larger part. There are likely to be many vehicles and many drivers available almost at once from the military organisations. Relations between roads and railways will be one of your main problems. We must at all costs avoid the difficulties and disputes which the uncontrolled exploitation of road transport brought in the United Kingdom."

Collision at Strabane : Inquiry Closed.—Mr. T. C. Courtney, the Railway Inspecting Officer, who was assisted by Mr. Robert O'Huadhaigh, barrister-at-law, concluded on January 19, his inquiry into the circumstances which attended the collision on December 20, 1944, near Strabane, between Portarlington and Portlaoise, on the Great Southern Railways. The night mail train from Dublin to Cork ran into a cattle train which had stopped in section due to steaming difficulties, about 3 miles from Portlaoise. A postal worker, F. P. Devine, travelling on duty, was killed. Rescue work was carried out as promptly as possible. Some of the evidence given was conflicting, particularly as to the condition of the signal giving admission to the section, concerning which members of the public made statements. The condition of the side and tail lights of

the standing train seemed also to be in dispute. The finding of the Inspecting Officer is to be announced in due course.

Turkish Post-War Expenditure on Railway Equipment.—Turkey will be in the U.S.A. market for over 40 million dollars' worth of railway equipment and rolling stock, under a post-war programme to expand and improve her entire transport system, according to an official of the Turkish State Railways, quoted by Reuters.

British and Irish Railway Stocks and Shares

Stocks	Highest 1944	Lowest 1944	Prices	
			Jan. 30, 1945	Rise/ Fall
G.W.R.				
Cons. Ord. ...	62½	55	59½	—
5% Con. Pref. ...	122½	114½	120	—
4% Red. Pref. (1950) ...	108	104	105	—
5% Rt. Charge ...	135½	128	134½	+ 1
5% Cons. Guar. ...	134½	125	133	—
4% Deb. ...	118½	122	116½	—
4½% Deb. ...	181½	194	188	—
4½% Deb. ...	124½	122	122	—
5½% Deb. ...	137	129½	136	—
2½% Deb. ...	77	73½	74½	—
L.M.S.R.				
Ord. ...	34½	27½	31½	+ 1
4% Pref. (1923) ...	64½	55½	62½	+ 1
4% Pref. ...	81	72	79½	—
5% Red. Pref. (1955) ...	105½	102	104	—
4% Guar. ...	107½	99½	105½	—
4% Deb. ...	111½	104	108	—
5% Deb. Deb. (1952) ...	111	108	108½	—
L.N.E.R.				
5% Pref. Ord. ...	10½	7½	8½	—
Def. Ord. ...	5½	3½	4	—
4% First Pref. ...	63½	55½	60	—
4% Second Pref. ...	35½	28½	31½	+ 1
5% Red. Pref. (1955) ...	105½	97½	103	—
4% First Guar. ...	105	96	103	—
4% Second Guar. ...	95	88	94½	—
3% Deb. ...	88½	80	86	—
4% Deb. ...	110½	103	107	—
5% Red. Deb. (1947) ...	105½	101½	102½	—
4½% Sinking Fund Red. Deb. ...	107	104½	104½	—
SOUTHERN				
Pref. Ord. ...	80½	71½	78	—
Def. Ord. ...	26½	23	26	+ 1
5% Pref. ...	122	113½	119½	—
5% Red. Pref. (1964) ...	117½	112½	115½	—
5% Guar. Pref. ...	134	125	133	—
5% Red. Guar. Pref. (1957) ...	115½	112½	115½	—
4% Deb. ...	118	110	115½	—
5% Deb. ...	135½	127	134	+ 1
4% Red. Deb. (1962-67) ...	111½	107½	108½	—
4% Red. Deb. (1970-80) ...	112	108½	109½	—
FORTH BRIDGE				
4% Deb. ...	107	103	105	—
4½% Guar. ...	106½	102	105	—
L.P.T.B.				
4½% "A" ...	125	119	122½	—
5% "A" ...	133½	128	132½	—
3½% Guar. (1967-72) ...	99½	98	99	—
5% "B" ...	124½	118½	123½	—
"C" ...	72½	64½	69	—
MERSEY				
Ord. ...	35½	03	36	—
3% Perp. Pref. ...	72	66	70	—
4% Perp. Deb. ...	105	103	107	—
3% Perp. Deb. ...	85½	79½	84	—
IRELAND*				
BELFAST & C.D.				
Ord. ...	9	6	8	—
G. NORTHERN				
Ord. ...	33½	19	30½	—
Pref. ...	49	37	48½	—
Guar. ...	70	57½	70	—
Deb. ...	90½	81½	92	+ 1½
IRISH TRANSPORT				
Common ...	—	—	65	— 3
3% Deb. ...	—	—	98½	+ 1½

*Latest available quotation

Railway Stock Market

A better tendency developed in stock markets, although the volume of business generally has been on a modest scale. Firmness was maintained in British Funds, while industrial shares regained part of their recent reaction, selling being on a very small scale, with sentiment slightly less under the influence of the difficulties and uncertainties of the switch-over of industry to peacetime working. The announcement of the decision to form too important undertakings with the object of assisting the post-war financing of industry was not without influence on the better market trend. Home rails developed a firmer tendency with the near approach of the dividend announcements, there being little selling, although demand did not show much improvement, apart from L.M.S.R. ordinary and Southern deferred, which the total dividends for 1944 as interim payments are not made in these two instances. It is confidently expected in the market that dividends will be the same as for 1943, which assumes, of course, that the directors will continue to be as liberal as possible in the allocation of revenue. The first announcement will be that of the L.M.S.R. on Wednesday next, followed by those of the Southern and London Transport on February 15 and by those of the L.N.E.R. and Great Western on February 16. Even if the war in Europe were to end this year, the general assumption is that the control agreement would be likely to be continued until 1947, which would, presumably, mean dividends at around current rates for two further years. Consequently, it is possible

home railway junior stocks might come in for a good deal more attention as time proceeds. In the case of the L.M.S.R. there might, according to some views, be the possibility of a slightly higher dividend; as the company's reserve position is good, the directors might sooner or later feel disposed to discontinue the annual allocation to contingencies. On the other hand, dividend policy is influenced to some extent by receipts from sources not included in the control agreement, which, of course, fluctuate from year to year. Southern deferred have been favoured again on the prospect of a revival of trade and travel with the Continent; but so long as the control agreement is in force, this will not assist revenue available for dividends, the control rental being, of course, fixed. Whereas the assured dividend position of home rail junior stocks might possibly attract a good deal more attention as time proceeds, investors at the moment are awaiting a lead. Consequently, there is an increasing disposition to await the statements at the annual meetings as they may deal more fully with the position and outlook and the attitude of the railways to the many problems looming ahead.

Compared with a week ago, Gt. Western strengthened from 58½ to 59, while prior charge stocks were firm with similar stocks of other main line railways, as in common with other high-grade investments, they reflect the trend in British Funds. Gt. Western 4 per cent. debentures were maintained at 116½, while the guaranteed stock gained half-a-point at 134½, although the 5 per cent. preference

eased slightly at 120. L.M.S.R. moved up from 30½ to 31½; but the senior preference was fractionally lower at 79½, and the 1923 preference was half-a-point down at 62. L.N.E.R. second guaranteed eased to 94½, the first preference at 59½ was unchanged on balance, and the second preference improved from 31½ to 31½. Southern deferred was 25½, compared with 25½ a week ago, with the preferred ordinary maintained at 78, and the 5 per cent. preference again 120. London Transport "C" at 69½ was the same as a week ago; the "A" stocks showed fractional gains.

Argentine rails moved lower, sentiment reflecting the maize crop news and the necessity of using grain as a fuel substitute. B.A. Gt. Southern went back from 11½ to 11, the 5 per cent. preference from 25½ to 24½ and the 4 per cent. debentures from 60 to 59. B.A. Western ordinary was fractionally lower at 10, also Central Argentine at 8, preference and debenture stocks also showing small declines, including B.A. & Pacific 4½ per cent. debentures at 53. Elsewhere, San Paulo ordinary kept at 59, but United of Havana 1906 debentures eased to 26½. Assam Railways "A" stock jumped further to 146 following the Government offer and meeting. Canadian Pacifics were lower at 14½.

SOUTH AFRICAN RAILWAYS' EARNINGS.—During the period December 10 to January 6 South African Railways' earnings amounted to £3,873,105, compared with £3,393,796 in the corresponding period of last year. On nine occasions during 1944, weekly earnings amounted to £1,000,000.

Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week ended	Traffic for week			No. of Weeks	Aggregate traffics to date			Shares or stock	Prices						
			Total this year	Inc. or dec. compared with 1942/3			1943/4	1942/3	Increase or decrease		Highest 1944	Lowest 1944	January 30, 1945	Yield % (See Note)			
				1943/4	1942/3												
South & Central America																	
Antofagasta (Chili) & Bolivia	834	21.1.45	£34,040	+ 560	3	92,990	£96,430	—	3,440	Ord. Stk.	13½	9½	10	Nill			
Argentine North Eastern	753	20.1.45	19,620	+ 4,120	29	574,760	467,413	+ 107,347	62	6 p.c. Deb.	18½	4½	6½	Nill			
Bolivar	...	174	Dec., 1944	5,945	+ 1,169	52	63,997	62,732	+ 1,265	Bonds	19½	15	18	Nill			
Brazil	...	...	—	—	—	—	—	—	—	Ord. Stk.	14½	9½	11	Nill	
Buenos Ayres & Pacific	2,773	20.1.45	151,200	+ 17,533	29	3,936,067	3,229,000	+ 707,067	...	Ord. Stk.	13½	9½	10	Nill			
Buenos Ayres Great Southern	5,080	20.1.45	307,467	+ 35,533	29	5,997,000	5,533,133	+ 463,867	...	Ord. Stk.	14½	9½	10	Nill			
Buenos Ayres Western	1,924	20.1.45	77,800	+ 6,667	29	2,162,333	1,739,066	+ 423,267	...	Ord. Stk.	13½	9½	10	Nill			
Central Argentine	3,700	20.1.45	199,993	+ 22,137	29	5,525,770	4,736,483	+ 789,287	...	Ord. Stk.	10½	6½	8½	Nill			
Do.	—	—	—	—	—	—	—	—	...	Ord. Stk.	4½	3	5	Nill			
Cent. Uruguay of M. Video	972	20.1.45	38,854	+ 3,922	29	958,037	990,658	— 32,621	...	Ord. Stk.	5½	4	4½	Nill			
Costa Rica	...	262	Nov., 1944	13,310	+ 6,583	21	111,223	114,386	— 3,163	Stk.	17½	14½	16	Nill			
Dorada	...	70	Nov., 1944	29,500	+ 4,500	47	294,943	243,607	+ 51,336	I Mt. Deb.	101	101	98½	£6 1/10			
Entre Rios	...	808	20.1.45	27,487	+ 5,727	29	762,153	650,906	+ 111,247	Ord. Stk.	6½	4½	4½	Nill			
Great Western of Brazil	1,030	20.1.45	29,800	+ 5,600	3	80,900	71,300	+ 9,600	Ord. Sh.	38½	23/3	30/-	Nill				
International of Cl. Amer.	794	Dec., 1944	£620,306	+ £76,062	52	£7,447,799	£7,285,649	+ £162,150	—	1st Pref.	1½	½	1	Nill			
Interoceanic of Mexico	—	—	—	—	—	—	—	—	...	5 p.c. Deb.	88	79	79½	£6 5/9			
La Guaira & Caracas	223	Dec., 1944	6,522	+ 463	52	90,117	97,885	— 7,768	...	Ord. Stk.	5½	4½	4½	Nill			
Leopoldina	...	1,918	20.1.45	53,073	+ 9,912	3	135,799	120,316	+ 15,483	Ord. Stk.	7½	4½	4½	Nill			
Mexican	...	483	21.1.45	ps. 596,000	+ ps. 230,300	3	ps. 1,542,000	ps. 1,086,600	+ ps. 455,400	Ord. Stk.	8½	4½	4½	Nill			
Midland Uruguay	...	319	Nov., 1944	16,470	+ 2,113	21	83,491	84,450	— 959	Ord. Stk.	8½	4½	4½	Nill			
Nitrate	...	382	15.1.45	6,644	+ 1,206	2	6,644	5,438	+ 1,206	Ord. Sh.	75/10	65/10	70/-	£3 11/5			
Paraguay Central	...	274	19.1.45	£61,215	+ £15,520	29	£1,759,583	£1,556,947	+ £202,636	Pr. Li. Stk.	79½	68	77	£7 16/3			
Peruvian Corporation	1,059	Dec., 1944	133,173	+ 17,641	26	769,298	637,187	+ 132,111	Ord. Sh.	9	10	9½	Nill				
Salvador	...	100	Nov., 1944	c 87,000	+ c 7,000	21	c 410,000	c 429,000	+ c 19,000	Ord. Stk.	57½	46	59	£3 7/6			
San Paulo	...	153½	—	—	—	—	—	—	...	Ord. Sh.	21/3	13/9	12/6	Nill			
Talca	...	156	Dec., 1944	2,390	+ 5,335	26	15,165	35,225	— 20,060	Ord. Sh.	4	2½	3	Nill			
United of Havana	...	1,301	20.1.45	50,055	+ 7,069	29	1,395,592	1,380,229	+ 15,363	Ord. Stk.	—	—	—	—			
Uruguay Northern	...	73	Nov., 1944	1,608	+ 34	21	7,291	7,130	+ 161	—	—	—	—	—			
Canada	Canadian Pacific	...	17,028	21.1.45	£1,092,400	—	17,800	3	2,973,000	3,104,800	—	131,800	Ord. Stk.	17½	13½	14½	6½
India	Barsi Light	...	202	Dec., 1944	17,475	—	570	39	203,107	191,332	+ 11,775	Ord. Stk.	129½	97½	127½	£3 10½	
Various	Egyptian Delta	...	607	31.12.44	23,417	+ 1,488	39	528,174	439,257	+ 88,917	Pr. Sh.	7½	5½	7	Nill		
Manila	Midland of W. Australia	...	277	Nov., 1944	18,036	+ 12,078	21	101,006	165,804	— 64,798	B. Deb.	63½	58	60	Nill		
Nigerian	...	1,900	25.11.44	374,576	+ 59,634	4	—	—	—	Inc. Deb.	101½	99½	98½	£4 1/3			
South Africa	...	13,301	2.12.44	1,042,870	+ 106,952	35	31,745,139	29,237,519	+ 2,507,620	—	—	—	—	—			
Victoria	...	4,774	April, 1944	1,188,999	+ 212,162	—	—	—	—	—	—	—	—	—			

Note. Yields are based on the approximate current price and are within a fraction of 1/2. Argentine traffics are given in sterling calculated at 15 pesos to the £

† Receipts are calculated at 1s. 6d. to the rupee